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SEARCH REQUEST FORM

Examiner # (Mandatory): 10802 Requester's Full Name: Alan Karpetsky
 Art Unit 1204 Location (Bldg/Room#): CEP - 1004 Phone (circle 305, 306, 308) 305
 Serial Number: 10802/000000 Results Format Preferred (circle): PAPER DISK E-MAIL
 Title of Invention: Pyrolytic Conversion of Heavy Tar to Carbon Products
 Inventors (please provide full names): Timothy Karpetsky
R. William E. Mengel
 Earliest Priority Date: 16 Jan 2001

Keywords (include any known synonyms, registry numbers, explanation of initialisms):

Carbon black
 reactant compound
 Vander Walls force
 coupling agent

Search Topic:

Please write detailed statement of the search topic, and the concept of the invention. Describe as specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples of relevant citations, authors, etc., if known. You may include a copy of the abstract and the broadcast or most relevant claim(s).

I am looking for the carbon black treatment of claims 3, 8, and 10-13.
 with the specific reactant compounds and coupling agents.
 (Claims copy attached)

STAFF USE ONLY

Searcher: _____	Type of Search	Vendors (include cost where applicable)
Searcher Phone #: _____	_____ N.A. Sequence	_____ STN
Searcher Location: _____	_____ A.A. Sequence	_____ Questel/Orbit
Date Picked Up: <u>1/13/03</u>	_____ Structure (#)	_____ Lexis/Nexis
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		_____ Other (specify)

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(FILE 'HOME' ENTERED AT 15:03:09 ON 13 JAN 2003)

FILE 'REGISTRY' ENTERED AT 15:03:25 ON 13 JAN 2003

L1 1 SEA ABB=ON PLU=ON CARBON/CN

FILE 'HCA' ENTERED AT 15:03:53 ON 13 JAN 2003

L2 110580 SEA ABB=ON PLU=ON L1/P OR (CARBON OR C) (L) (PREP OR IMF OR SPN)/RL

L3 24672 SEA ABB=ON PLU=ON ?CHLOROSILANE? OR ?CHLORO(W)SILANE?

L4 304 SEA ABB=ON PLU=ON L2 AND L3

L5 0 SEA ABB=ON PLU=ON ELASTOMER?/SCSX

L6 163580 SEA ABB=ON PLU=ON ELASTOMER?/SC, SX

L7 0 SEA ABB=ON PLU=ON L4 AND L6

L8 322574 SEA ABB=ON PLU=ON ?PEROXID?

L9 5 SEA ABB=ON PLU=ON L4 AND L8

D SCAN

L10 49683 SEA ABB=ON PLU=ON ACID###(A)CHLORID? OR (ACETYL? OR PROPIONYL ? OR BUYRIL? OR VALERYL? OR CAPROYL? OR CAPRYL?) (2A)CHLORID?

L11 1 SEA ABB=ON PLU=ON L4 AND L10

D SCAN

L12 1433962 SEA ABB=ON PLU=ON ?TITAN? OR ?ZIRCON? OR ?ALUMIN?

L13 42 SEA ABB=ON PLU=ON L4 AND L12

L14 136043 SEA ABB=ON PLU=ON COUPLER? OR SURFAC? (2A) (TREAT? OR MODIF? OR CONDITION? OR PRETREAT?)

L15 0 SEA ABB=ON PLU=ON L13 AND L14

L16 46391 SEA ABB=ON PLU=ON (CARBON OR C) (2A) (PARTICL? OR PARTICULAT? OR GRANUL? OR POWDER? OR SOOT? OR FLAKE#)

L17 2 SEA ABB=ON PLU=ON L13 AND L16

D SCAN

L18 8 SEA ABB=ON PLU=ON L9 OR L11 OR L17

FILE 'REGISTRY' ENTERED AT 15:14:16 ON 13 JAN 2003

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L19
L20 60817 SEA FILE=REGISTRY SSS FUL L19

FILE 'HCA' ENTERED AT 15:15:01 ON 13 JAN 2003

L21 118671 S L20

L22 14 S L4 AND L21

L23 0 S L22 AND L14

L24 0 S L22 AND L16

=> d L18 1-8 cbib abs hitind hitrn

L18 ANSWER 1 OF 8 HCA COPYRIGHT 2003 ACS

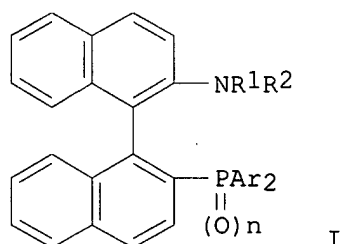
136:54569 Preparation of 1,3-disilacyclobutanes bearing reactive unsaturated

roups, their (co)polymers, and their crosslinked products. Lee, Sang Do; Murakami, Masashi; Ogawa, Takuya (Dow Corning Asia Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001354772 A2 20011225, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-174096 20000609.

- AB Dihalosilanes $R_1R_2SiX_2$ and bishalomethylsilanes $R_3R_4Si(CH_2X)_2$ [R_1-R_4 = reactive unsatd. groups $CH_2:CR_5Z_p$ (I), H, Cl-8 alkyl, Cl-8 halogenated alkyl, C6-12 arom. hydrocarbyl, halogenated C6-12 hydrocarbyl; X = F, Cl, Br, I; R_5 = H, Me; Z = divalent org. group which may contain O; p = 0, 1] are reacted using Grignard reagent to obtain 1,3-disilacyclobutanes bearing I, which are then subjected to ring opening-polymer., maybe with 1,3-disilacyclobutanes which do not bear reactive unsatd. groups, using metal catalysts to give the (co)polymers. The (co)polymers will be crosslinked using radical generators to give products having 3-dimensional networks of SiC bondings which provide excellent chem. and phys. durability. Thus, 230 mmol $PhSiCl_2CH_2CH:CH_2$ was cyclized with 58 mmol $Cl_2CHSiMe_2$ in THF contg. Mg and dibromoethane which formed $EtMgBr$ to give 1-allyl-1-phenyl-3,3-dimethyl-1,3-disilacyclobutane in yield 24%, which was copolymer. with trans-1,3-dimethyl-1,3-diphenyl-1,3-disilacyclobutane in PhMe in the presence of $Rh_2(nbd)_2Cl_2$ (nbd = 2,5-norbornadiene) to give a reddish yellow, transparent, glassy copolymer having M_w 150,000, polydispersity 3.50, and T_g 25.1.degree. in yield 99%. The copolymer was crosslinked using dicumyl **peroxide** to give a product showing melt viscosity at 360.degree. 3.67 .times. 106 P, storage modulus 3.67 .times. 106 dyn/cm², tensile strength 4.4 MPa, Young's modulus 0.2 GPa, and elongation at rupture 531%.
- IC ICM C08G077-60
ICS C07F007-08; C08J003-24; C08L083-16
- CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 24, 35
- IT Polycarbosilanes
RL: CPS (Chemical process); **IMF (Industrial manufacture)**; PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(prepn. of 1,3-disilacyclobutanes bearing C:C and their (co)polymn. and crosslinking)
- IT 925-90-6P, Ethylmagnesium bromide
RL: CAT (Catalyst use); PNU (Preparation, unclassified); **PREP (Preparation)**; USES (Uses)
(Grignard reagent; prepn. of 1,3-disilacyclobutanes bearing C :C using)
- IT 80-43-3, Dicumyl **peroxide**
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalysts; prepn. of 1,3-disilacyclobutanes bearing C:C and their (co)polymn. and crosslinking)
- IT 2917-46-6, Bischloromethyldimethylsilane 7719-03-1, **Allylphenyldichlorosilane**
RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer prepn. from; prepn. of 1,3-disilacyclobutanes bearing C:C and their (co)polymn. and crosslinking)
- IT 311344-28-2P, 1-Allyl-1-phenyl-3,3-dimethyl-1,3-disilacyclobutane homopolymer 382137-40-8P 382141-51-7P
RL: CPS (Chemical process); **IMF (Industrial manufacture)**; PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(prepn. of 1,3-disilacyclobutanes bearing C:C and their (co)polymn. and crosslinking)
- IT 311344-27-1P
RL: **IMF (Industrial manufacture)**; RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(prepn. of 1,3-disilacyclobutanes bearing C:C and their (co)polymn. and crosslinking)

complexes of transition metals with novel axial asymmetric compound ligands, catalysts for asymmetric hydrogenation, and catalysts for forming asymmetric carbon-carbon bonds. Kenzo, Sumi; Ryoji, Naylor; Takao, Ikariya (Takasago International Corporation, Japan). U.S. Pat. Appl. Publ. US 2001037033 A1 20011101, 18 pp., Division of U.S. Ser. No. 471,247. (English). CODEN: USXXCO. APPLICATION: US 2001-875186 20010607. PRIORITY: US 1999-471247 19991223; JP 1998-367755 19981224.

GI



AB The title catalyst is a metal (Rh, Ru, Ir or Ni) complex with ligand of an aminophosphine compd. I (Each Ar represents an aryl group optionally substituted with a halogen atom, a C1-4-alkyl or an alkoxy group, both Ars being same or different with each other). In I, R1, R2 = H, a cycloalkyl group having 5-7 C atoms, or C1-6-alkyl optionally substituted with a halogen atom, a lower alkoxy group or Ph group, with R1 and R2 being same or different from each other. Alternatively, 1 of R1 and R2 = H and the other is -COR3 (C3 = cycloalkyl group having 5-7 C atoms, a C1-6-alkyl optionally substituted with a halogen atom, a lower alkoxy group or Ph group, a substituted or unsubstituted Ph group, or a C1-6-alkyl optionally substituted with a cycloalkyl group having 5-7 C atoms, a halogen atom, a lower alkoxy group or Ph group) or -SO2R4 (R4 = cycloalkyl group having 5-7 C atoms, an alkyl group optionally substituted with a halogen atom, a lower alkoxy group or Ph group, or substituted or unsubstituted Ph group), n = 0. Thus, 4.5 mg (-)-2-amino-2'-diphenylphosphino-1,1'-binaphthyl, 5.0 mg bis(1,5-cyclooctadiene) iridium tetrafluoroborate, 154 mg geraniol and 2 mL ethylene chloride were charged into an autoclave and stirred at 30.degree. for 20 h in H under a pressure 4 atm., solvent was evapd. to give 77% yield citronellol.

IC ICM B01J031-00

NCL 556019000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 67

IT 106-22-9P, Citronellol 17989-95-6P 278800-82-1P

RL: IMF (Industrial manufacture); PREP (Preparation)

(complexes of transition metals with novel axial asym. compds. as ligands for asym. hydrogenation and for asym. carbon-carbon bond forming reaction)

IT 278800-77-4P 278800-81-0P 311800-96-1P 311800-97-2P 371254-57-8P
371783-25-4P 371783-26-5P 371783-27-6P 371783-29-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(complexes of transition metals with novel axial asym. compds. as ligands for asym. hydrogenation and for asym. carbon-carbon bond forming reaction)

IT 75-36-5, Acetyl chloride 79-22-1, Methyl
chloroformate 98-88-4, Benzoyl chloride 124-41-4, Sodium methoxide
124-63-0, Methanesulfonyl chloride 498-66-8, Norbornene 10025-78-2,

- Trichlorosilane** 13292-87-0 17763-67-6, Phenyl
trifluoromethanesulfonate 156456-68-7 371783-23-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(complexes of transition metals with novel axial asym. compds. as
ligands for asym. hydrogenation and for asym. carbon-carbon bond
forming reaction)
- IT 259260-33-8P 278800-87-6P
RL: CAT (Catalyst use); **IMF (Industrial manufacture)**; **PREP**
(Preparation); USES (Uses)
(ligand; complexes of transition metals with novel axial asym. compds.
as ligands for asym. hydrogenation and for asym. **carbon-**
carbon bond forming reaction)
- IT 371783-24-3P 371783-28-7P
RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**
(ligand; complexes of transition metals with novel axial asym. compds.
as ligands for asym. hydrogenation and for asym. **carbon-**
carbon bond forming reaction)
- L18 ANSWER 3 OF 8 HCA COPYRIGHT 2003 ACS
123:39141 Nanosized Si-C-N **powder** by pyrolysis of highly
crosslinked silylcarbodiimide. Kienzle, A.; Bill, J.; Aldinger, F.;
Riedel, R. (Inst. Werkstoffwissenschaft, Max-Planck-Inst., Stuttgart,
W-70569, Germany). Nanostructured Materials, 6(1-4), 349-52 (English)
1995. CODEN: NMAEE7. ISSN: 0965-9773. Publisher: Elsevier.
- AB A process for prepn. of nanosized SiCN ceramic powders by pyrolyzing
highly cross linked, ceramic-like silylcarbodiimide ([Si(N=C=N)₂]_n)-powder
is presented. The nanosized polymer is formed quant. by the reaction of
bis(trimethylsilyl)-carbodiimide (I) with **tetrachlorosilane** in
toluene or THF as solvent in the presence of catalytic amts. of pyridine.
I can also react with other elemental chlorine compds. Therefore, we
describe the reaction of I with **titanium** tetrachloride. The
resulting deeply red polymer can be pyrolyzed at 1100.degree.C to ceramic
materials in the system TiCN. In contrast to the amorphous SiCN ceramic
the TiCN ceramic is still cryst. at this temp.
- CC 57-2 (Ceramics)
- IT Polymer degradation
(thermal, prepn. of nanosized Si-C-N **powder** by
pyrolysis of highly crosslinked silylcarbodiimide)
- IT 1000-70-0
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; prepn. of nanosized Si-C-N **powder** by
pyrolysis of highly crosslinked silylcarbodiimide)
- IT 64477-28-7P, Silicon carbonitride
RL: PEP (Physical, engineering or chemical process); **SPN (Synthetic**
preparation); **PREP (Preparation)**; PROC (Process)
(prepn. of nanosized Si-C-N **powder** by pyrolysis of
highly crosslinked silylcarbodiimide)
- L18 ANSWER 4 OF 8 HCA COPYRIGHT 2003 ACS
110:106860 Magnetic recording media. Tanaka, Hideaki; Gomi, Kenichi; Saito,
Yukio; Fujita, Kazunori; Takeuchi, Seiji; Sawahata, Shoichi; Mori,
Toshikatsu; Honchi, Akio (Hitachi, Ltd., Japan). Jpn. Kokai Tokkyo Koho
JP 63136316 A2 19880608 Showa, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1986-281790 19861128.
- AB The title material is characterized by surface treatment of a C protective
film for formation of radicals thereon and formation of a lubrication
layer thereon using chem. modification with radicals. Thus, a C film 300
.ANG. thick was treated in an O₂-H₂O plasma for 2 min, and the lubrication
layer was formed by spin-coating of BuOH contg. 1 wt.%
octadecyltrichlorosilane and firing at 200.degree. for 2 h.

- IC ICM G11B005-66
ICS C23C014-06; G11B005-72
- CC 77-8 (Magnetic Phenomena)
- ST recording magnetic disk carbon protective film; surface coupling radical carbon film; lubrication film coupled carbon film; oxygen plasma treatment carbon film; water vapor plasma treatment carbon film; **decyltrichlorosilane** coupled lubrication film formation
- IT 112-04-9, **Octadecyltrichlorosilane**
RL: PRP (Properties)
(formation of lubrication layers from, on magnetic recording disks)
- IT **7440-44-0P, Carbon**, uses and miscellaneous
RL: **PREP (Preparation)**; USES (Uses)
(formation of surface-coupling radicals on, in manuf. of magnetic recording disks)
- IT 7722-84-1, Hydrogen **peroxide**, properties 7732-18-5, Water, vapor 7782-44-7, Oxygen, properties
RL: PRP (Properties)
(plasma from, for treatment of carbon protective films for magnetic recording disks)
- IT **7440-44-0P, Carbon**, uses and miscellaneous
RL: **PREP (Preparation)**; USES (Uses)
(formation of surface-coupling radicals on, in manuf. of magnetic recording disks)
- L18 ANSWER 5 OF 8 HCA COPYRIGHT 2003 ACS
110:95691 Silafunctional compounds in organic synthesis. 40. Metalated (allyl)aminosilanes: a .gamma.-regioselective reaction with aldehydes and an approach to the synthesis of 2-deoxy-C-nucleoside skeletons. Tamao, Kohei; Nakajo, Eiji; Ito, Yoshihiko (Fac. Eng., Kyoto Univ., Kyoto, 606, Japan). Tetrahedron, 44(13), 3997-4007 (English) 1988. CODEN: TETRAB. ISSN: 0040-4020. OTHER SOURCES: CASREACT 110:95691.
- AB An organocopper reagent, derived from allyl(diethylamino)dimethylsilane via metalation with BuLi-Me₂NCH₂CH₂NMe₂ followed by transmetalation, reacts with aldehydes regioselectively at the .gamma. position to form 1-substituted (E)-3-buten-1-ol derivs. Epoxidn. of the double bond followed by hydrogen **peroxide** cleavage of the carbon-silicon bond affords 2,3-dihydroxytetrahydrofuran derivs., which are further transformed into 2-deoxy-C-nucleoside skeletons via siloxymethylation at the anomeric position. One model system is presented, together with the stereochem. aspects.
- CC 33-9 (Carbohydrates)
- IT Nucleosides, preparation
RL: **SPN (Synthetic preparation)**; **PREP (Preparation)**
(C-, deoxy, prepn. of, via siloxymethylation of dihydroxytetrahydrofurans)
- IT 2622-05-1, Allylmagnesium chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(allylation by, of **aminodimethylchlorosilanes**)
- IT 119092-92-1P 119093-12-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and sequential epoxidn. and oxidn. of, with hydrogen **peroxide**)
- IT 142-25-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(sequential reaction of, with butyllithium, **dimethyldichlorosilane**, and allylmagnesium bromide)

- L18 ANSWER 6 OF 8 HCA COPYRIGHT 2003 ACS
110:30320 Manufacture of nuclear reactor fuel pellets with pyrolytic carbon cover layers. (GA Technologies, Inc., USA). Jpn. Tokkyo Koho JP 63030596

B4 19880620 Showa, 5 pp. (Japanese). CODEN: JAXXAD. APPLICATION: JP 1979-500795 19790507. PRIORITY: US 1978-904518 19780510; WO 1979-US298 19790507.

AB Nuclear reactor fuel pellets comprise a core from oxides of U, Th, and/or Pu, and a low-concn. pyrolytic C cover layer in which SiC and/or Zr carbide particles are distributed. The cover layer efficiently prevents heat transfer from the core. In the manuf. of the pellets, the C and **particles** are copptd. at, e.g., 900-1800.degree..

IC G21C003-64

CC 71-5 (Nuclear Technology)

ST reactor nuclear fuel pellet; pyrolytic carbon layer fuel pellet; silicon carbide carbon reactor fuel cover; **zirconium** carbide carbon reactor fuel cover

IT 12070-14-3P, **Zirconium** carbide (ZrC) 409-21-2P, Silicon carbide (SiC), uses and miscellaneous

RL: **PREP (Preparation)**

(**carbon** cover layers contg. particles of, on nuclear reactor fuel pellets, manuf. of)

IT 74-86-2, Acetylene, reactions 75-79-6, **Methyltrichlorosilane**

RL: RCT (Reactant); RACT (Reactant or reagent)

(pyrolytic carbon layer formation from, in manuf. of nuclear reactor fuel pellets)

IT **7440-44-0P, Carbon**, uses and miscellaneous

RL: **PREP (Preparation)**; USES (Uses)

(pyrolytic, nuclear reactor fuel pellets with cover layer of, manuf. of)

IT **7440-44-0P, Carbon**, uses and miscellaneous

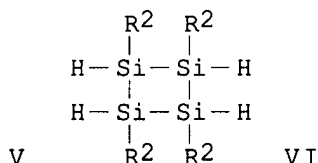
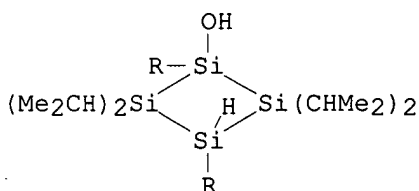
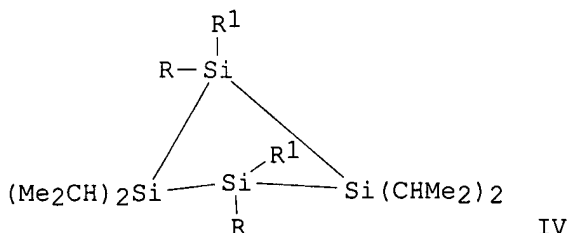
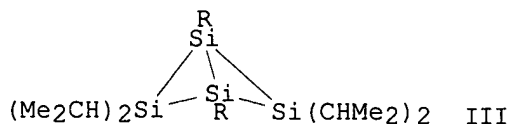
RL: **PREP (Preparation)**; USES (Uses)

(pyrolytic, nuclear reactor fuel pellets with cover layer of, manuf. of)

L18 ANSWER 7 OF 8 HCA COPYRIGHT 2003 ACS

108:56170 Generation of the dianion from tetrasilabicyclo[1.1.0]butane derivatives. Kawase, Takeshi; Batcheller, Scott A.; Masamune, Satoru (Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA). Chemistry Letters (2), 227-30 (English) 1987. CODEN: CMLTAG. ISSN: 0366-7022. OTHER SOURCES: CASREACT 108:56170.

GI



AB Reductive coupling of $(\text{Me}_2\text{CH})_2\text{SiHCl}$ with RSiH_2Cl [$\text{R} = 4,2,6\text{-Me}_3\text{C}(\text{Me}_2\text{CH})_2\text{C}_6\text{H}_2$], prep'd. in several steps from 2,6-diisopropylaniline, afforded 85% $\text{RSiH}_2\text{Si}(\text{CHMe}_2)_2\text{H}$ (I). Chlorination of I with benzoyl peroxide- CCl_4 gave 80% $\text{RSiCl}_2\text{Si}(\text{CHMe}_2)_2\text{Cl}$ (II). Reductive cyclization of II with 5 equiv lithium naphthalenide in 1,2-dimethoxyethane generated tetrasilabicyclobutane intermediate III, which formed the appropriate cyclotetrasilane IV (same R; $\text{R}^1 = \text{H}, \text{Me}$) upon quenching with water or MeI. Use of 3.5 equiv reductant followed by aq. workup afforded 2 isomers of cyclotetrasilane V (same R). Similar reductive cyclization of $\text{R}_2\text{SiCl}_2\text{SiHR}_2\text{Cl}$ [$\text{R}_2 = 2,6\text{-(Me}_2\text{CH})_2\text{C}_6\text{H}_3$] gave 3 diastereomers of cyclotetrasilane VI (same R_2). Products were formed from dianions of tetrasilabicyclobutane intermediates.

CC 29-6 (Organometallic and Organometalloidal Compounds)

IT 112313-56-1P 112313-61-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and chlorination of, with carbon tetrachloride-benzoyl peroxide)

IT 112313-54-9P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. and coupling of Grignard deriv. of, with dichlorosilane)

L18 ANSWER 8 OF 8 HCA COPYRIGHT 2003 ACS

100:6624 Silafunctional compounds in organic synthesis. XVIII. Oxidative cleavage of the silicon-carbon bond in alkenylfluorosilanes to carbonyl compounds: synthetic and mechanistic aspects. Tamao, Kohei; Akita, Munetaka; Kumada, Makoto (Dep. Synth. Chem., Kyoto Univ., Kyoto, 606, Japan). Journal of Organometallic Chemistry, 254(1), 13-22 (English) 1983. CODEN: JORCAI. ISSN: 0022-328X. OTHER SOURCES: CASREACT 100:6624.

AB Alkenyltrifluorosilane are readily oxidized by one equiv of $m\text{-ClC}_6\text{H}_4\text{CO}_2\text{OH}$ (I) in DMF even at -50° to give the corresponding carbonyl compds. via cleavage of the C-Si bond. With three equiv of I, a concomitant cleavage of the C-C bond occurs. A plausible mechanism of these new types

of oxidn. has been discussed. Oxidn. with DABCO.cntdot.2H2O2 (DABCO = 1,4-diazabicyclooctane) has also been described.

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22

ST oxidative cleavage silicon carbon bond; oxidn alkenyltrifluorosilane; silane alkenyltrifluoro oxidn; perbenzoate oxidn alkenyltrifluorosilane; fluoroalkenylsilane oxidn **peroxide**

IT Oxidation
(of alkenyltrifluorosilanes by perbenzoate or by hydrogen **peroxide**)

IT Carbonyl compounds, preparation
RL: **SPN (Synthetic preparation); PREP (Preparation)**
(prepn. of, by oxidative cleavage of silicon-carbon bond in alkenyltrifluorosilanes)

IT 16941-12-1
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for hydrosilylation of alkynes by **trichlorosilane**)

IT 7789-19-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(fluorination by, of **trichlorosilanes**)

IT 3844-94-8 14630-40-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrosilylation of, with **trichlorosilane**)

IT 81501-26-0 83168-82-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidn. of, by chloroperbenzoic acid or by hydrogen **peroxide** complex)

soil and subjecting the thus heated soil to sufficient microwave radiation to sustain at least a partial fusion or melting process that results in a fixing of the heavy metals in the soil.

IC ICM B09B003-00

ICS E21B036-00

NCL 588253000

CC 60-4 (Waste Treatment and Disposal)

IT Microwave

Soil pollution

Wastes

(metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**)

IT Metals, occurrence

RL: POL (Pollutant); OCCU (Occurrence)

(metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**)

IT Waste solids

(contaminated soils, metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**)

IT 7440-44-0P, Carbon, preparation

RL: BYP (Byproduct); PREP (Preparation)

(metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**)

IT 7429-90-5, Aluminum, occurrence 7439-89-6, Iron, occurrence 7439-95-4, Magnesium, occurrence 7439-96-5, Manganese, occurrence 7439-98-7, Molybdenum, occurrence 7440-02-0, Nickel, occurrence 7440-09-7, Potassium, occurrence 7440-21-3, Silicon, occurrence 7440-23-5, Sodium, occurrence 7440-39-3, Barium, occurrence 7440-43-9, Cadmium, occurrence 7440-48-4, Cobalt, occurrence 7440-50-8, Copper, occurrence 7440-66-6, Zinc, occurrence 7440-70-2, Calcium, occurrence 7723-14-0, Phosphorus, occurrence

RL: POL (Pollutant); OCCU (Occurrence)

(metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**)

IT 7440-44-0P, Carbon, preparation

RL: BYP (Byproduct); PREP (Preparation)

(metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**)

L91 ANSWER 15 OF 18 HCA COPYRIGHT 2003 ACS

112:218103 Process for improving surface properties of material and **surface-treating** apparatus therefor. Takeda, Atsushi;

Yamazaki, Kenji (ISI Y. K., Japan; Tomio Keisa K. K.). PCT Int. Appl. WO 8910208 A1 19891102, 74 pp. DESIGNATED STATES: W: CH, DE, GB, JP, NL, US. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1989-JP432 19890425. PRIORITY: JP 1988-102617 19880427; JP 1988-236285 19880922.

AB The title process for plastics, metals, plastics additives, inorg. powders, etc. comprises irradiating the material with UV in vacuo or in an inert atm. to cleave atom-to-atom bonds of certain surface groups and remove certain atoms, and reacting the activated surface with radicals of a **reactive** gas or coating **agent** activated by UV or laser beam irradsn. to produce new surface groups and modify the surface properties, and the app. comprises a closed vessel contg. a UV lamp, connected to an inert gas feed pipe, a reactive gas feed pipe, and a

degassing app. to make the reactor interior selectively vacuum or an atm. of inert or reactive gas. A carbon fiber bundle was passed through the interior of a spiral low-pressure Hg lamp in Ar to remove H and N from the fiber surface C then in air to bond O on the fiber surface C to give a treated fiber showing improved wettability to silane couplers commonly used in plastics.

- IC ICM B05C009-10
ICS B05D003-06; B01J019-12; C04B035-64; C08J007-18; C23C008-36;
C23C016-00; D06M013-00; D06M014-18
- CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 55, 56
- IT Cement
Pitch
Carbon black, preparation
Metals, preparation
RL: PREP (Preparation)
(manuf. of photochem. surface-modified, for improved wettability)
- IT Waterproofing
(of carbon black and pitch and silica and calcium carbonate, by photochem. surface modification)
- IT 919-30-2, TSL 8331 1760-24-3, TSL 8340 2602-34-8, TSL 8350
4420-74-0, TSL 8380 127290-36-2, TSL 8031 127290-37-3,
TSL 8303 127290-38-4, TSL 8802 127290-39-5, TSL 8845
RL: USES (Uses)
(couplers, carbon fibers with improved wettability with, for plastics)
- IT 7631-86-9, Silica, uses and miscellaneous
RL: USES (Uses)
(fluoric acid-treated, photochem. surface-modified, for improved wettability)
- IT 3031-73-0, Methyl hydroperoxide
RL: USES (Uses)
(photochem. surface modification of silica in presence of)
- IT 127290-36-2, TSL 8031 127290-37-3, TSL 8303
RL: USES (Uses)
(couplers, carbon fibers with improved wettability with, for plastics)

L91 ANSWER 17 OF 18 HCA COPYRIGHT 2003 ACS

107:15571 Electrostatographic toners. Tsushima, Rikio; Takemura, Kazunari; Otani, Shoji; Niki, Masao (Kao Corp., Japan). Jpn. Kokai Tokkyo Koho JP 62035368 A2 19870216 Showa, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1985-175253 19850809.

AB A C3-25 monomer having a polymg. unsatd. group is polymd. in an aq. medium in the presence of a water-sol. polymer and/or an inorg. salt slightly sol. in water, a coloring agent, and toner property-improving agents to give polymer particles. The polymer particles are then treated with a reactive org. Ti compd. to give the toner particles. Bu acrylate and styrene were polymd. in an aq. medium in the presence of C black, Hiwax 210P, poly(vinyl alc.), and azobisisobutyronitrile to give a water slurry of polymer particles. The polymer particles were then treated with Plainact TTS to give the toner. It showed improved triboelec. properties and moisture resistance.

- IC ICM G03G009-08
- CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST electrophotog toner titanate coupling agent; triboelec moisture resistance electrophotog toner
- IT Coupling agents
(titanates, electrophotog. toners treated by, for improved triboelec. properties and moisture resistance)
- IT Electrophotographic developers

- (toners, prepn. of, suspension polymn. and **surface treatment** by titanium coupling agent for improved triboelec. properties and moisture resistance)
- IT 7393-48-8, TBT-B 4 67691-13-8, Plainact 38S
RL: USES (Uses)
(**titanate** coupling agent, electrophotog. toners treated by, for improved triboelec. properties and moisture resistance)
- IT 61417-49-0, Plainact TTs
RL: USES (Uses)
(**titanate** coupling agent, electrophotog. toners treated for improved triboelec. properties and moisture resistance)
- L91 ANSWER 18 OF 18 HCA COPYRIGHT 2003 ACS
69:110190 Colloidal compositions. Fadner, Thomas A. (Oxford Paper Co.). Fr. FR 1505928 19671215, 8 pp. (French). CODEN: FRXXAK. PRIORITY: US 19660105.
- AB The compns. consist of anisotropic and amphoteric colloidal particles having a particle size distribution between 0.5 and 3 .mu. on which are attached at least one type of chem. colloidal particles having nonamphoteric functionality. Compns. are prepd. by attaching the colloidal functional particles onto the colloidal anisotropic surfaces by means of an org. aliphatic fatty acid which functions as a bridging agent. The nonamphoteric functionality consists of particles between 0.01 and 1.0 .mu. and carry a neg. elec. charge. The anisotropic amphoteric particles are grains of clay, nonsusceptible to swelling. The particles of nonamphoteric character may be colloidal anionic suspensions of **carbon black**, acetylene **black**, Fe oxide, TiO₂, S, Zn oxide, or polystyrene. A mixt. of one or more of these can be used. The compns. after being dried can be utilized for a no. of industrial applications, e.g., prepn. of coatings, cosmetics, etc., and in applications where clay is used as a carrier material for other colloidal particles having a defined chem. or phys. role.
- IC C09K
CC 66 (Surface Chemistry and Colloids)
IT Fatty acids, uses and miscellaneous
RL: USES (Uses)
(as **coupling agents** for amphoteric-nonamphoteric composite colloids)
- IT **Carbon black**, uses and miscellaneous
RL: USES (Uses)
(colloids (composite) from clays and)
- IT Clays
RL: PRP (Properties)
(colloids (composite) of amphoteric, with nonamphoteric colloids, contg. fatty acids as **coupling agents**)

=> d L92 1-23 cbib abs hitind hitrn

- L92 ANSWER 1 OF 23 HCA COPYRIGHT 2003 ACS
137:145909 Study on the **surface modification** of nanometer **carbon particles** in atmospheric plasma. Ge, Y. J.; Zhang, G. Q.; Liu, Y. M.; Guo, X. G.; Zhao, Z. F. (Beijing Institute of Printing, Beijing, 102600, Peop. Rep. China). Acta Metallurgica Sinica (English Letters), 15(2), 177-181 (English) 2002. CODEN: AMSIFZ. ISSN: 1006-7191. Publisher: Acta Metallurgica Sinica (English Letters).
- AB The surface modification of nanometer carbon material has been studied by using an Induced Dielec. Barrier Discharge Plasma device (IDBD). The exptl. results show that with different work gases and different discharge conditions, the surface behaviors of carbon black can be changed according

to needs, including the use of different functional groups and the change of the surface roughness of carbon particles etc., which increased the grinding and dispersion abilities in binder.

CC 66-3 (Surface Chemistry and Colloids)

Section cross-reference(s): 76

IT Carboxyl group

Functional groups

Grinding (size reduction)

Nanoparticles

Particle size

Plasma

Surface acidity

Surface roughness

(**surface modification** of nanometer **carbon particles** in atm. plasma)

IT 7440-44-0, Carbon, properties

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(**surface modification** of nanometer **carbon particles** in atm. plasma)

L92 ANSWER 2 OF 23 HCA COPYRIGHT 2003 ACS

135:377174 Dispersion characteristics of natural crystalline **graphite powders** by **surface modification**. Gon, Kim

Byoung; Keun, Choi Sang; Seung, Chung Hun; Keun, Han Sang; Jang, Lee Jae (Korea Institute Geoscience Mineral Resources, Kangwon National University, S. Korea). Han'guk Chaelyo Hakhoechi, 11(8), 679-684 (Korean) 2001. CODEN: HCHAEU. ISSN: 1225-0562. Publisher: Materials Research Society of Korea.

AB The surface of natural graphite has not only good elec. conductivities and lubrication properties but also has strong hydrophobicity. There are no functional groups and chem. properties on it. It is difficult to join with any other ions and to disperse in aq. system. In order to increase dispersion ability throughout modification of surface property, it is necessary to let graphite have some function on its surface by the adsorption of surfactant mols. In this study, using zeta potential adsorbed surfactant mols. (ABDM) on graphite surface and its surface properties turn from hydrophobic into hydrophilic ones. The dispersing mechanism of graphite particles in aq. system has been explained using the DLVO theory. It is concluded that a highly dispersed graphite suspension with the dispersion stability (T1/2) 44.5 h at pH 10 and 22.5 mV zeta potential can be produced.

CC 66-3 (Surface Chemistry and Colloids)

IT Surfactants

(cationic; dispersion characteristics of natural cryst.

graphite powders by **surface modification**)

IT Adsorption

Contact angle

Hydrophilicity

Suspensions

Zeta potential

(dispersion characteristics of natural cryst. **graphite powders** by **surface modification**)

IT Potential energy

(interparticle; dispersion characteristics of natural cryst.

graphite powders by **surface modification**)

IT 63993-45-3, ABDM

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical

- process); PROC (Process); USES (Uses)
(dispersion characteristics of natural cryst. **graphite powders by surface modification**)
- IT 7782-42-5, Graphite, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(dispersion characteristics of natural cryst. **graphite powders by surface modification**)
- L92 ANSWER 3 OF 23 HCA COPYRIGHT 2003 ACS
135:307439 **Surface modification of glassy carbon powders** by thermal plasma treatment and their electrochemical properties. Maruyama, Satoshi; Kurihara, Masato; Ishigaki, Takamasa; Hishita, Shunichi; Sato, Yoichiro (TDK Corp., R & D Center, National Institute for Research in Inorganic Materials, Tsukuba, 305-0044, Japan). Journal of the Society of Inorganic Materials, Japan, 290, 37-43 (Japanese) 2001. CODEN: JSIJFR. ISSN: 1345-3769. Publisher: Society of Inorganic Materials, Japan.
- AB **Surface modification of glassy carbon powder** was carried out to improve the electrochem. properties as anode materials for lithium ion secondary battery, in RF induction thermal plasma with the various reaction atmospheres. Glassy carbon powders treated in thermal plasmas showed characteristic surface morphol. and compositional change. Nitrogen incorporation was recognized in the Ar-N₂ plasma-treated powder. In addn., XRD measurement showed the thermal plasma treatment gave rise to advance in graphitization. The electrochem. measurements of plasma treated samples also showed the increase of capacity (increase of inserted lithium content), change of the charge-discharge performance, and improvement of its cycle performance (lithium intercalation and de-intercalation). It was shown that the thermal plasma treatment should be feasible to the improvement of the electrochem. properties of carbonaceous materials.
- CC 57-8 (Ceramics)
Section cross-reference(s): 52, 66, 72
- IT Intercalation
(deintercalation; thermal plasma **surface modification** of glassy **carbon powders** and treatment effects on electrochem. properties as anode material for lithium ion secondary battery)
- IT Electric charge
(discharge; thermal plasma **surface modification** of glassy **carbon powders** and treatment effects on electrochem. properties as anode material for lithium ion secondary battery)
- IT Battery anodes
(glassy carbon; thermal plasma **surface modification** of glassy **carbon powders** and treatment effects on electrochem. properties as anode material for lithium ion secondary battery)
- IT Heat treatment
(plasma; thermal plasma **surface modification** of glassy **carbon powders** and treatment effects on electrochem. properties as anode material for lithium ion secondary battery)
- IT Graphitization
Secondary batteries
(thermal plasma **surface modification** of glassy **carbon powders** and treatment effects on electrochem. properties as anode material for lithium ion secondary battery)
- IT 7440-44-0, **Carbon**, processes

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(glassy, **powders**; thermal plasma **surface modification** of glassy **carbon powders** and treatment effects on electrochem. properties as anode material for lithium ion secondary battery)

L92 ANSWER 4 OF 23 HCA COPYRIGHT 2003 ACS

135:220017 Magnetic recording medium using **surface-modified**

granular carbon material. Jinbo, Noboru (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001243619 A2 20010907, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-51722 20000228.

AB The recording medium has a magnetic layer contg. a ferromagnetic powder on a support and an underlayer contg. a nonmagnetic granular carbon material powder between the support and the magnetic layer. The nonmagnetic carbon material is that treated with a F-contg. gas then with a steam-contg. gas on the surface. The recording medium, preferably a thin film magnetic tape, good electromagnetic conversion, durability in running, and good storage stability in an atm. with high humidity and temp.

IC ICM G11B005-738

ICS C09D005-23; C09D201-00; C09C003-06

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 57

ST magnetic recording medium surface treated carbon; underlayer surface treated carbon magnetic tape; nonmagnetic **granular carbon** fluorine **surface treatment**; steam surface treatment carbon magnetic tape; ferromagnetic material magnetic tape

IT Ferromagnetic materials

(in magnetic layer; in magnetic tape involving underlayer contg.

carbon powder surface-treated

with)

IT Steam

(magnetic tape involving underlayer contg. **carbon**

powder surface-treated with)

IT 11138-11-7, Barium iron oxide 208936-54-3

RL: DEV (Device component use); USES (Uses)

(ferromagnetic, in magnetic layer; in magnetic tape involving underlayer contg. **carbon powder surface-treated** with)

L92 ANSWER 5 OF 23 HCA COPYRIGHT 2003 ACS

134:59033 **Surface modification** of natural **graphite**

particles for lithium ion batteries. Tsumura, T.; Katanosaka, A.; Souma, I.; Ono, T.; Aihara, Y.; Kuratomi, J.; Inagaki, M. (NARD Institute, Amagasaki, 660-0805, Japan). Solid State Ionics, 135(1-4), 209-212 (English) 2000. CODEN: SSIOD3. ISSN: 0167-2738. Publisher: Elsevier Science B.V..

AB The surface of natural graphite particles for the anode of dry-type polymer lithium-ion batteries was modified by means of carbon coating and poly(ethylene oxide) (PEO) grafting. Carbon coating on graphite particles was achieved by a simple mixing of graphite particles with poly(vinyl chloride) powders and heating up to 500.degree. under a nitrogen gas flow. The graphite particles obtained were coated with carbon homogeneously. The carbon layer was oxidized by heating at 400.degree. in static air to form carboxyl group and then PEO was grafted by esterification of the carboxyl group with terminal hydroxyl group of PEO. The dispersibility of the PEO-grafted particles in water was improved compared to that of untreated graphite particles.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

- ST **graphite particle surface modification**; anode graphite lithium ion battery
- IT Polyoxyalkylenes, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**surface modification of natural graphite particles by carbon coating and polyethylene oxide grafting for use as anodes for lithium-ion batteries**)
- IT Battery anodes
(**surface modification of natural graphite particles for use as anodes for lithium-ion batteries**)
- IT 9002-86-2, Poly(vinyl chloride)
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(in **surface modification of natural graphite particles by carbon coating and polyethylene oxide grafting for use as anodes for lithium-ion batteries**)
- IT 7440-44-0, Carbon, processes 25322-68-3, Polyethylene oxide
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**surface modification of natural graphite particles by carbon coating and polyethylene oxide grafting for use as anodes for lithium-ion batteries**)
- IT 7782-42-5, Graphite, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**surface modification of natural graphite particles for use as anodes for lithium-ion batteries**)

L92 ANSWER 6 OF 23 HCA COPYRIGHT 2003 ACS

134:44874 **Flake graphite cast iron surface**

modification by composite optical YAG laser. Ozoe, Nobuaki; Hayakawa, Motozo; Sato, Kiminori (Shimane Institute for Industrial Technology, Japan). Chuzo Kogaku, 72(9), 587-592 (Japanese) 2000. CODEN: CHKOFY. ISSN: 1342-0429. Publisher: Nippon Chuzo Kogakkai.

AB The **surface modification of flake**

graphite cast iron was carried out using a composite optical system in which both continuous wave (CW) and pulse YAG laser can be individually or simultaneously irradiated on a spot. The degree of the surface modification was evaluated in terms of the thickness of the hardened layer, surface roughness, and microstructure. With increasing power, the surface eventually melts and results in the roughening and softening of the surface, which limits the max. applicable beam power. The max. thickness of the hardened layer obtained was 100 .mu.m for CW and 80 .mu.m for pulse laser. On the other hand, a thicker hardened layer of 120 .mu.m was obtained with composite irradiation combining CW and pulse laser.

CC 55-6 (Ferrous Metals and Alloys)

ST **flake graphite cast iron surface**

modification; laser surface modification cast iron

IT Laser radiation

Microstructure

Surface roughness

(**flake graphite cast iron surface**

modification by composite optical YAG laser)

IT 138342-39-9, FC250, processes

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(**flake graphite cast iron surface**

modification by composite optical YAG laser)

L92 ANSWER 7 OF 23 HCA COPYRIGHT 2003 ACS

133:328145 Correction of: 133:110329 Substrate-induced deposition of carbon

black particles from aqueous dispersion on gelatin-**modified surface**. Bele, M.; Kocevar, K.; Musevic, I.; Besenhard, J. O.; Pejovnik, S. (National Institute of Chemistry, Ljubljana, SI-1000, Slovenia). Colloids and Surfaces, A: Physicochemical and Engineering Aspects, 168(3), 231-239 (English) 2000. CODEN: CPEAEH. ISSN: 0927-7757. Publisher: Elsevier Science B.V..

AB In the process of substrate-induced deposition of carbon black, a printed wiring board (PWB) surface is 1st covered with a gelatin film. The subsequent immersion of such substrates into a deposit-able dispersion leads to deposition of dispersed particles on the surface of the substrate. Current studies show that an essential point in the successful prepn. of deposit-able dispersions is control of surfactant and salt concns., both of which have a decisive influence on particle deposition. On one hand, the dispersion must be stable. For this purpose surfactants were used. However, the dispersion must be near the point where deposition can occur. This point is controlled by the appropriate addn. of a salt, which screens the elec. field of the surfaces and allows particles to approach to shorter distances during their Brownian motion. At. force microscope (AFM) was used to measure distance dependence of the forces between microscopic-size glass spheres coated with gelatin and a solid surface covered with carbon black in the presence of aq. soln.

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 66

IT **Surface** structure

(**modification**; substrate-induced deposition of **carbon black particles** from aq. dispersion on gelatin-modified surface)

L92 ANSWER 8 OF 23 HCA COPYRIGHT 2003 ACS

132:182617 Particle **modifying** method and device for **surface** hydrophilization. Horiuchi, Takahiro; Morimoto, Kiyofumi (Sharp Kabushiki Kaisha, Japan). Eur. Pat. Appl. EP 982379 A2 20000301, 73 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-306837 19990827. PRIORITY: JP 1998-244006 19980828; JP 1998-287910 19981009.

AB A method is described for **modifying** the **surface** of **particles**, esp. **carbon black** or pigments, for hydrophilization, comprising suspending the particles in a liq. contg. a modifier (e.g., HNO3) and heating the suspension while it is mixed or transported so that the surface of the particles is modified by the modifier. The method makes it possible to provide surface-modified particles having a comparatively small particle size at low costs for a short time by using simple operations without causing the particles to be charged.

IC ICM C09C003-00

ICS B01J002-30

CC 48-11 (Unit Operations and Processes)

Section cross-reference(s): 41, 42, 49, 57

L92 ANSWER 9 OF 23 HCA COPYRIGHT 2003 ACS

129:323178 Grain **surface** chemistry: **modified models**. Shalabiea, Osama M.; Caselli, Paola; Herbst, Eric (Department of Physics, Ohio State University, Columbus, OH, 43210, USA). Astrophysical Journal, 502(2, Pt. 1), 652-660 (English) 1998. CODEN: ASJOAB. ISSN: 0004-637X. Publisher: University of Chicago Press.

AB The rate equation approach to the chem. occurring on grain surfaces in interstellar clouds was criticized for not taking the discrete nature of grains into account. Indeed, studies of simple models show that results obtained from rate equations can be significantly different from results

obtained by a Monte Carlo procedure. Some modifications of the rate equations were proposed that have the effect of eliminating most of the differences with the Monte Carlo procedure for simplified models of interstellar clouds at temps. of 10 K and slightly above. The authors study the use of the modified rate equations in more realistic chem. models of dark interstellar clouds with complex gas-grain interactions. Results show some discrepancies between the results of models with unmodified and modified rate equations; these discrepancies are highly dependent, however, on the initial form of H chosen. If the initial form is mainly mol., at early stages of cloud evolution there are some significant differences in calcd. mol. abundances on grains, but at late times the 2 sets of results tend to converge for the main components of the grain mantles. If the initial form is at. H, there are essentially no differences in results between models based on the unmodified rate equations and those based on the modified rate equations, except for the abundances on grains of some minor complex mols. Thus, the major results of previous gas-grain models of cold, dark interstellar clouds remain at least partially intact.

- CC 73-9 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- IT 50-00-0, Formaldehyde, occurrence 67-56-1, Methanol, occurrence 74-82-8, Methane, occurrence 107-12-0, Cyanoethane 107-13-1, 2-Propenenitrile, occurrence 124-38-9, **Carbon** dioxide, occurrence 630-08-0, **Carbon** monoxide, occurrence 1070-71-9, Cyanoacetylene 1333-74-0, Hydrogen, occurrence 2122-48-7, Ethynyl 7664-41-7, Ammonia, occurrence 7727-37-9, Nitrogen, occurrence 7732-18-5, Water, occurrence 7782-44-7, Oxygen, occurrence 12075-35-3, **Carbon** trimer 12184-80-4, **Carbon** tetramer 12385-13-6, Hydrogen atom, occurrence 12595-82-3, **Carbon** pentamer, occurrence 12595-84-5, **Carbon** hexamer, occurrence 51890-76-7, **Carbon** heptamer, occurrence 53561-65-2, 1,3-Butadiynyl 53590-28-6, 2-Propynylidyne 59866-32-9, 2,4-Pentadiynenitrile 65937-22-6, Cyanohexatriyne 67483-72-1, Cyanooctatetrayne 88053-50-3, 1,3,5-Hexatriynyl 88053-51-4, 1,3,5,7-Octatetraynyl 104602-63-3, 2,4-Pentadiynylidyne 129066-03-1, 2,4,6-Heptatriynylidyne 134801-67-5, **Carbon** octamer, occurrence
- RL: GOC (Geological or astronomical occurrence); GPR (Geological or astronomical process); OCCU (Occurrence); PROC (Process)
- (grain surface chem. with modified models
in relation to interstellar clouds and dust)

L92 ANSWER 10 OF 23 HCA COPYRIGHT 2003 ACS

- 129:194909 **Surface** property **modification** of the particles of suspensions used in composite electrochemical coating technology. Tikhonov, A. P. (Mendeleev University of Chemical Engineering, Moscow, 125820, Russia). Colloid Journal (Translation of Kolloidnyi Zhurnal), 60(3), 379-382 (English) 1998. CODEN: CJRSEQ. ISSN: 1061-933X. Publisher: MAIK Nauka/Interperiodica Publishing.
- AB Modification of the dispersed phase particles having different properties resulting from the formation of a metal-sulfide film on the particle surface leads to uniform properties of the suspensions under investigation. The investigation of the adsorption, electrokinetic, and structure-related mech. characteristics of the aq. suspensions of sulfidized colloidal and fluorinated graphites, polytetrafluoroethylene, molybdenum disulfide, aluminum oxide, and silicon carbide enabled us to establish the virtual identity of the surface properties of the modified particles. The surface cond. of sulfidized particles provides the optimal conditions for cathodic processes and the manuf. of composite electrochem. coatings (CEC) with controlled compn.

- CC 72-8 (Electrochemistry)
Section cross-reference(s): 66
- IT 409-21-2, Silicon carbide, properties 1317-33-5, Molybdenum disulfide, properties 1344-28-1, Aluminum oxide, properties 9002-84-0, Polytetrafluoroethylene 11113-63-6, Fluorinated **Graphite**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(**particles surface property modification**
by composite electrochem. coating technol.)
- L92 ANSWER 11 OF 23 HCA COPYRIGHT 2003 ACS
128:181035 **Surface modification** of inorganic ultrafine particles by the grafting of polymers. Tsubokawa, Noria; Kawatsura, Kazue; Shirai, Yukio (Department of Material Science and Technology, Faculty of Engineering, Niigata University, Niigata, 950-21, Japan). International Conference on Composite Materials, Proceedings, 11th, Gold Coast, Australia, July 14-18, 1997, Volume 4, 537-546. Editor(s): Scott, Murray L. Australian Composite Structures Society: Melbourne, Australia. (English) 1997. CODEN: 65TEAE.
- AB To modify the surface of carbon black [Neospectra II] and inorg. ultrafine silica [Aerosil 200] and TiO₂ particles, radical polymn. of monomers onto the activated surfaces was studied. The particles were pre-treated with various reagents to introduce reactive groups, e.g., phenolic, hydroxyl, quinone oxygen, and carboxy groups that were then involved in radical polymn. of vinyl monomers. The vinyl monomers tested include styrene, methacrylic acid, Me methacrylate, acrylic acid, N-isopropylacrylamide [NIPAM], and styrene-acrylic acid. Introduction of azo groups onto carbon black was achieved by reaction of 4,4'-azobis(4-cyanopentanoic acid) with TDI-treated carbon black while trichloroacetyl groups were introduced onto silica and TiO₂ surfaces by treatment with trichloroacetyl isocyanate. The grafting efficiency (proportion of attached polymer to total polymer formed) was about 50% at the initial stage, but immediately decreased by the middle and last stages of polymn. because of preferential formation of free polymer. When the polymn. of vinyl monomers was initiated by trichloroacetyl groups and Mo(CO)₆ the grafting efficiency was about 60% and scarcely decreased even at the last stage of the polymn. The tensile strength of a polystyrene film compounded with polymer-grafted carbon black increased with the level of **surface modification** of the **carbon black particles**.
- CC 37-6 (Plastics Manufacture and Processing)
- L92 ANSWER 12 OF 23 HCA COPYRIGHT 2003 ACS
127:332145 Study of **surface** properties of **carbon black particles modified** with **surface** grafting polymer. Wu, Biyao; Shao, Lanying; Zhang, Jianmin; Zhang, Baohua; Lu, Anhua; Jiang, Ziduo (Wuhan Inst. Chemical Technology, Wuhan, 430013, Peop. Rep. China). Gaofenzi Cailiao Kexue Yu Gongcheng, 13(5), 104-108 (Chinese) 1997. CODEN: GCKGEI. ISSN: 1000-7555. Publisher: "Gaofenzi Cailiao Kexue Yu Gongcheng" Bianjibu.
- AB The surface zeta elec. potential of **carbon black particles modified** with **surface** grafting polymer and KCl aq. soln. system was investigated. The adsorption of sodium laurylbenzene sulfonate or N-benzyltrimethylammonium chloride mols. on normal carbon black surface and polymer-modified carbon black surface was studied. Exptl. results show that the zeta elec. potential of carbon black particles modified with poly(acrylic acid) was lower than that of the unmodified carbon black but remained unchanged by polyacrylamide modification. The equil. adsorption value of the surfactant on carbon black changed after surface modification.
- CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 46

- IT Surfactants
(anionic, sodium laurylbenzene sulfonate; surfactant adsorption and zeta potential of **carbon black particles surface modification** by polymers)
- IT Surfactants
(cationic, benzyldimethylaurylammonium chloride; surfactant adsorption and zeta potential of **carbon black particles surface modification** by polymers)
- IT Adsorption
Zeta potential
(surfactant adsorption and zeta potential of **carbon black particles surface modification** by polymers)
- IT Carbon black, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(surfactant adsorption and zeta potential of **carbon black particles surface modification** by polymers)
- IT 9003-01-4, Poly(acrylic acid) 9003-05-8, Polyacrylamide
RL: NUU (Other use, unclassified); USES (Uses)
(surfactant adsorption and zeta potential of **carbon black particles surface modification** by)
- IT 139-07-1, Benzyldimethylaurylammonium chloride 25155-30-0, Sodium laurylbenzene sulfonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(surfactants; surfactant adsorption and zeta potential of **carbon black particles surface modification** by polymers)
- L92 ANSWER 13 OF 23 HCA COPYRIGHT 2003 ACS
126:158339 **Surface modification** of fine solid particles by dispersing with reactive polymers. Ando, Nobuyuki; Toribuchi, Hironobu; Ikeda, Isato; Kushino, Mitsuo; Mori, Yoshikuni (Nippon Catalytic Chem Ind, Japan). Jpn. Kokai Tokkyo Koho JP 08337737 A2 19961224 Heisei, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-147940 19950614.
- AB Surface of solid particles, e.g., inorg. pigments, magnetic powders, powd. ceramics, etc., are modified by mixing the particles with polymers substituted by groups being reactive with functional groups on the particles in liq. mediums and dispersing under heating to give stable dispersions. Wet dispersing app. for the process are also claimed. Thus, 97 parts styrene and 3 parts glycidyl methacrylate were polymd. in the presence of poly(vinyl alc.) to give epoxy-substituted polymer, 10 parts of which was mixed with 30 parts MA 100R (powd. carbon black) in 360 parts MePh and dispersed at 160.degree. to give a pigment dispersion showing no pptn. after 10 days.
- IC ICM C09C003-10
ICS B01J019-00; C09C001-56
- CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 49, 57
- ST surface modification particle polymer dispersion stability; **carbon black powder surface treatment**;
epoxy substituted polymer carbon black treatment; glycidyl methacrylate copolymer carbon black modification; styrene copolymer carbon black particle modification
- IT **Carbon black**, miscellaneous
RL: MSC (Miscellaneous)

(powd.; **surface modification** of solid fine particles by dispersing with reactive polymers to give stable dispersions)

L92 ANSWER 14 OF 23 HCA COPYRIGHT 2003 ACS

126:93463 **Surface modification** of particles in a plasma jet fluidized bed reactor. Hanabusa, Takanobu; Uemiya, Shigeyuki; Kojima, Toshinori (Dep. Industrial Chem., Fac. Eng., Seikei Univ., Tokyo, 180, Japan). Surface and Coatings Technology, 88(1-3), 226-231 (English) 1997. CODEN: SCTEEJ. ISSN: 0257-8972. Publisher: Elsevier.

AB **Surface modification** of activated **carbon particles** using SiH₄-CH₄ and SiH₄-C₂H₄ as source gases were carried out in a d.c. plasma-jet fluidized bed reactor at atm. pressure and temp. The effects of gas injection methods, premix and diffusion-mix methods on the source gases conversion are reported. It was found that the diffusion-mix method realized a higher conversion of reactants than the premix method for the SiH₄-C₂H₄ system. Results of an XPS anal. of the product showed that the surface of the activated carbon particles was coated with the produced SiC film. Surface profiles of the XPS anal. showed that SiC/C ratio was almost const. with depth. The ratio of the film produced by the diffusion-mix method was much larger than that by the premix method.

CC 57-8 (Ceramics)

ST **surface modification** film activated **carbon particle**; silicon carbide film activated carbon particle

IT 7440-44-0, Carbon, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(activated; **surface modification** of activated **carbon particles** in a plasma jet fluidized bed reactor)

IT 409-21-2, Silicon carbide (SiC), processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(films; **surface modification** of activated **carbon particles** in a plasma jet fluidized bed reactor)

IT 74-82-8, Methane, processes 74-85-1, Ethylene, processes 7803-62-5, Silicon hydride (SiH₄), processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(source gases; **surface modification** of activated **carbon particles** in a plasma jet fluidized bed reactor)

L92 ANSWER 15 OF 23 HCA COPYRIGHT 2003 ACS

125:93565 Study on **surface** properties of **carbon black particles modified with surface** -grafted polymer. Wu, Biyao; Shao, Lanying; Zhang, Jianmin; Zhang, Baohua; Liu, Anhua; Jiang, Ziduo (Dep. Fine Chemical Technology, Wuhan Institute Chemical Technology, Wuhan, 430073, Peop. Rep. China). Cailiao Yanjiu Xuebao, 9(6), 547-550 (Chinese) 1995. CODEN: CYXUEV. ISSN: 1005-3093. Publisher: Cailiao Yanjiu Xuebao Bianjibu.

AB The surface zeta potential of **carbon black particles modified with surface** grafting polymer-KCl aq. soln. system was investigated. Adsorbability of sodium laurylbenzene sulfonate (LAS) or laurylbenzyltrimethylammonium chloride (1227) mols. on normal carbon black surface and graft polymer modified carbon black surface was explored. It was suggested that the zeta potential, ζ , of **carbon black particles modified with surface** graft polyacrylamide is lower than

that of unmodified carbon black, but modification of surface grafting of acrylamide onto carbon black do not change Ez of modified carbon black particles. Because of surface modification of graft polymer, the adsorption balance of surfactant on carbon black surface and Ez are changed.

- CC 57-8 (Ceramics)
Section cross-reference(s): 38
- IT Carbon black, properties
RL: PRP (Properties)
(polymers with acrylamide and acrylic acid, graft; surface properties of **carbon black particles modified with surface-grafted polymer**)
- IT Adsorption
Electrokinetic potential
Surface
(surface properties of **carbon black particles modified with surface-grafted polymer**)
- IT 139-07-1, Laurylbenzyltrimethylammonium chloride 25155-30-0, Sodium laurylbenzene sulfonate
RL: PRP (Properties)
(adsorption of; surface properties of **carbon black particles modified with surface-grafted polymer**)
- IT 79-06-1D, Acrylamide, polymers with carbon black, graft 79-10-7D, Acrylic acid, polymers with carbon black, graft
RL: PRP (Properties)
(surface properties of **carbon black particles modified with surface-grafted polymer**)

L92 ANSWER 16 OF 23 HCA COPYRIGHT 2003 ACS

123:259155 **Modification of particle surfaces** by plasma polymerized layers. Suzuki, Takanori; Kurosaki, Masaari (Tomoegawa Paper Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 07194968 A2 19950801 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-13196 19940110.

AB The title process, useful for modifying toners or carriers for static copying, powd. magnet, etc., consists of polymg. polymerizable monomers (e.g., hexamethyldisiloxane) on the surface of floating and vibrating particles (e.g., of 100:7:4:2 blend of Bu acrylate-styrene copolymer, MA-100, Viscol 660P, and T-77) by exposing to plasma.

IC ICM B01J019-08

ICS G03G009-087; G03G009-10

CC 38-2 (Plastics Fabrication and Uses)

Section cross-reference(s): 35

IT **Carbon black, uses**

RL: MOA (Modifier or additive use); USES (Uses)
(**particles** contg.; **modification** of particle **surfaces** by plasma polymd. layers)

L92 ANSWER 17 OF 23 HCA COPYRIGHT 2003 ACS

121:164622 **The surface modification of graphite powder** by direct fluorination. (II). The effect of fluorination temperature. Chong, Yong-bo; Idogawa, Hiroyuki; Kuronuma, Makoto; Yamada, Fumiyuki; Watanabe, Nobuatsu (Research Institute Applied Science, Kyoto, 606, Japan). Nippon Kagaku Kaishi (7), 605-12 (Japanese) 1994. CODEN: NKAKB8. ISSN: 0369-4577.

AB The changes of the surface properties of graphite powder with direct fluorination in the temp. range from room temp. (RT) to 300.degree. were studied by measuring dispersion stability and H2O adsorption. The state

of the F atoms on the graphite surfaces was also examd. by XPS anal. The dispersion stability of graphite powder in H₂O largely increased by surface modification of direct fluorination at RT, and decreased gradually with increasing fluorination reaction temp. Also, graphite powder with surface fluorination at 300.degree. did not disperse in H₂O, but floated on the surface. The H₂O adsorption showed that the surface fluorination at RT provided hydrophilic graphite powder, increasing dispersion stability. While the surface fluorination at higher reaction temp. provided gradually hydrophobic graphite powder, decreasing dispersion stability. The hydrophilic surface comes from introduction of the ionized F atoms, while the hydrophobic surface comes from formation of the C-F covalent bonding, according to the XPS anal.

CC 66-3 (Surface Chemistry and Colloids)

Section cross-reference(s): 49

ST **surface modification graphite powder**

direct fluorination; hydrophilic graphite powder dispersion stability
fluorination

L92 ANSWER 18 OF 23 HCA COPYRIGHT 2003 ACS

119:99110 **Surface modification of graphite**

powders by direct fluorination. Chong, Yong Bo; Watanabe, Nobuatsu; Idogawa, Hiroyuki; Wakata, Atsushi (Res. Inst. Appl. Sci., Kyoto, 606, Japan). Nippon Kagaku Kaishi (6), 746-51 (Japanese) 1993. CODEN: NKAKB8. ISSN: 0369-4577.

AB Changes of the surface properties of graphite powders with direct fluorination were investigated by measuring dispersion stability, water adsorption, and the .zeta.-potential. The state of the F atoms on the graphite surfaces was also examd. by XPS anal. The dispersion stability of the graphite particles in water was considerably increased by the surface fluorination. The fluorinated graphite particles in water were not flocculated and were stably dispersed for a long time. The exams. of the water adsorption and .zeta.-potential showed that the surface fluorination provided more hydrophilic graphite particles, leading to dispersion stability. According to the XPS anal., the hydrophilic surface resulted from introduction of ionized F atoms.

CC 49-1 (Industrial Inorganic Chemicals)

ST **surface modification graphite powder**

direct fluorination; dispersion graphite powder surface fluorination

IT 7782-42-5, **Graphite**, properties

RL: PRP (Properties)

(powd., **surface modification** of, by
direct fluorination)

L92 ANSWER 19 OF 23 HCA COPYRIGHT 2003 ACS

118:138662 The **surface modification of graphite**

particles by direct fluorination. Chong, Yong Bo; Watanabe, Nobatsu; Idogawa, Hiroyuki; Wakata, Atsushi (Res. Inst. Appl. Sci., Kyoto, 606, Japan). Chemistry Letters, 2, 361-4 (English) 1993. CODEN: CMLTAG. ISSN: 0366-7022.

AB The dispersion stability of graphite particles in H₂O was largely increased by a surface modification of direct fluorination. The fluorinated graphite particles in H₂O did not flocculate and kept stable suspension for long time. The surface of fluorinated graphite particles became more hydrophilic and was highly polarized in H₂O.

CC 78-9 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 66

L92 ANSWER 20 OF 23 HCA COPYRIGHT 2003 ACS

115:31231 **Surface-modified carbon-based black**

powders and their manufacture. Shibuta, Daisuke; Kuge, Koichi;

Saito, Shuichi; Takenuki, Shinya (Mitsubishi Metal Corp., Japan; Tokemu Products K. K.). Jpn. Kokai Tokkyo Koho JP 03068664 A2 19910325 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-204894 19890809.

AB The title powders are prepd. by contacting F gas-contg. inert gas mixts. with hollow C powders at a temp. between room temp. and 200.degree. to give powders contg. 10-80% F and showing resistivity (R) 10.degree.-1012 .OMEGA.-cm. Thus, contacting Ketjenblack EC-PJ 600 with 1:4 F-N mixt. at 150.degree. for 2 h gave black powders contg. 36% F with R 2.4 .times. 103 .OMEGA.-cm.

IC ICM C09C001-44
ICS C01B031-02

CC 42-6 (Coatings, Inks, and Related Products)

L92 ANSWER 21 OF 23 HCA COPYRIGHT 2003 ACS

112:163940 Agent and method for **surface modification** of powders and **surface-modified** powders, especially for refractories. Kitahara, Akira; Sawada, Shojiro (Kansai Coke and Chemicals Co., Ltd., Japan; Osaka Kasei K. K.). Jpn. Kokai Tokkyo Koho JP 01224275 A2 19890907 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-47892 19880301.

AB The agent is an aq. soln. of low-foam surfactant and polyhydroxy alc. The surface of powder particles is modified by treatment with the agent. The surface-modified powders have the surfactant and the alc. adhered to their particle surface. An aq. soln. contg. 19% condensed Na naphthalenesulfonate and 19% glycerin was used to modify graphite flakes. The surface-modified flakes mixed well with Al2O3, aluminous cement, SiC, and Al in refractory manuf.

IC ICM C04B035-66
ICS B01F017-00; B01F017-38

CC 57-6 (Ceramics)

ST **graphite flake surface modification**
; sodium naphthalenesulfonate graphite surface modification; glycerin graphite surface modification; refractory **graphite flake surface modification**

IT 1321-69-3, Sodium naphthalenesulfonate
RL: USES (Uses)

(condensed, **surface modification** of
graphite flakes with glycerin and, for refractories)

IT 7782-42-5, **Graphite**, properties
RL: PRP (Properties)

(**flakes**, **surface modification** of, with
glycerin and condensed sodium naphthalenesulfonate, for refractories)

IT 56-81-5, Glycerin, uses and miscellaneous
RL: USES (Uses)

(**surface modification** of **graphite flakes** with condensed sodium naphthalensulfonate and, for refractories)

L92 ANSWER 22 OF 23 HCA COPYRIGHT 2003 ACS

108:60374 Composition for **modifying** the **surface** of castings in mold. Gurin, S. S.; Kleshchenok, G. I.; Kantorovich, I. I.; Samal, G. I. (Belorussian Polytechnic Institute, USSR; Scientific-Research Institute of Physical-Chemical Problems, Minsk; Belorussian State University). U.S.S.R. SU 1340881 A1 19870930 From: Otkrytiya, Izobret. 1987, (36), 61. (Russian). CODEN: URXXAF. APPLICATION: SU 1985-3993846 19851104.

AB To prevent formation of decarburized outer zone on the modified surface of castings, the aq. mixt. contains 5-8% low-crystallinity graphite in addn. to powd. MgF2 20-30, silicocalcium 25-40, bentonite 7-18, and water glass 2-6%.

IC ICM B22C003-00
ICS B22D027-18
CC 55-2 (Ferrous Metals and Alloys)
IT 1344-09-8, Water glass
RL: USES (Uses)
(casting **surface modification** by mixts. contg.,
graphite powder for decarburization prevention in)

L92 ANSWER 23 OF 23 HCA COPYRIGHT 2003 ACS

75:50201 Effect of **surface chemical modification** of
carbon black particles on elastomer

reinforcement. Pieniazek, Jan; Gajewski, Mieczyslaw; Tomassi, Witold;
Ufnalski, Waldemar; Calus, Henryk (Inst. Przem. Gumowego, Warsaw, Pol.).
Polimery (Warsaw, Poland), 16(1), 21-6 (Polish) 1971. CODEN: POLIA4.
ISSN: 0032-2725.

AB The reinforcing properties of modified furnace blacks in rubber
vulcanizates depend more on their surface area than O contents. Vulcan 3
was degassed in vacuum at 300-50.degree. or heated at 300-50.degree. in
dry purified N, CO2, or CO. The modified blacks were then used as fillers
in std. rubber mixes based on butadiene-styrene rubber. The modification
had very little effect on the processing characteristics or phys.
properties of these mixes and vulcanizates prepd. from them under optimum
condition.

CC 38 (Elastomers, Including Natural Rubber)

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FILE 'LREGISTRY' ENTERED AT 09:38:56 ON 13 JAN 2003

L1 151 SEA ABB=ON PLU=ON (H(L)C(L)CL(L)SI)/ELS(L)4/ELC
L2 STR

FILE 'REGISTRY' ENTERED AT 09:46:18 ON 13 JAN 2003

L3 18676 SEA ABB=ON PLU=ON (H(L)C(L)CL(L)SI)/ELS(L)4/ELC
L4 50 SEA SSS SAM L2
D QUE STAT L4

FILE 'REGISTRY' ENTERED AT 10:26:50 ON 13 JAN 2003

L7 60817 SEA SSS FUL L5
SAVE DOROSH499/A L7
DEL YAMN466/A
DEL YAMN949A/A

FILE 'HCA' ENTERED AT 10:28:48 ON 13 JAN 2003

L8 37592 SEA ABB=ON PLU=ON L3
L9 118671 SEA ABB=ON PLU=ON L7

FILE 'LCA' ENTERED AT 10:30:08 ON 13 JAN 2003

L10 1111 SEA ABB=ON PLU=ON CHLOROSILAN? OR CHLORO(W)SILAN? OR ?PEROX?
OR ACID###(A)CHLORID### OR (ACETYL? OR PROPIONYL? OR BUTYRL?
OR VALERYL? OR CAPROYL? OR CAPRYL?) (2A)CHLORID?
L11 242 SEA ABB=ON PLU=ON TITANAT? OR ZIRCONAT? OR ALUMINAT?
L12 0 SEA ABB=ON PLU=ON CH3COCL OR C2H5COCL
L13 3324 SEA ABB=ON PLU=ON TITAN? OR ZIRCON? OR ALUMIN?
L14 3693 SEA ABB=ON PLU=ON CARBON## OR CARBON##(A)BLACK? OR GRAPHIT?
OR COKE#
L15 490 SEA ABB=ON PLU=ON REACT?(3A) (COMPOUND? OR AGENT?)
L16 70 SEA ABB=ON PLU=ON VAN##(2A)DER? (A)WAAL? OR DER##(A)WAAL? OR
VAN#(2A)WAAL?
L17 49 SEA ABB=ON PLU=ON COUPL?(2A)AGENT?

FILE 'HCA' ENTERED AT 10:47:25 ON 13 JAN 2003

L18 422130 SEA ABB=ON PLU=ON CHLOROSILAN? OR CHLORO(W)SILAN? OR ?PEROX?
OR ACID###(A)CHLORID### OR (ACETYL? OR PROPIONYL? OR BUTYRL?
OR VALERYL? OR CAPROYL? OR CAPRYL?) (2A)CHLORID?
L19 106751 SEA ABB=ON PLU=ON TITANAT? OR ZIRCONAT? OR ALUMINAT?
L20 131 SEA ABB=ON PLU=ON CH3COCL OR C2H5COCL
L21 1409369 SEA ABB=ON PLU=ON TITAN? OR ZIRCON? OR ALUMIN?
L22 1266870 SEA ABB=ON PLU=ON CARBON## OR CARBON##(A)BLACK? OR GRAPHIT?
OR COKE#
L23 139595 SEA ABB=ON PLU=ON REACT?(3A) (COMPOUND? OR AGENT?)
L24 25852 SEA ABB=ON PLU=ON VAN##(2A)DER? (A)WAAL? OR DER##(A)WAAL? OR
VAN#(2A)WAAL?
L25 23152 SEA ABB=ON PLU=ON COUPL?(2A)AGENT?
L26 545175 SEA ABB=ON PLU=ON L8 OR L9 OR L10

FILE 'REGISTRY' ENTERED AT 10:59:09 ON 13 JAN 2003

L27 1 SEA ABB=ON PLU=ON CARBON/CN

FILE 'HCA' ENTERED AT 10:59:23 ON 13 JAN 2003

L28 19412 SEA ABB=ON PLU=ON L27/P
 L29 QUE ABB=ON PLU=ON L14 OR L28
 L30 QUE ABB=ON PLU=ON L14 OR L28 OR C
 L31 239 SEA ABB=ON PLU=ON (CARBON OR C) (2A) BLACK?
 L32 178 SEA ABB=ON PLU=ON SURFAC? (2A) TREAT?
 L33 QUE ABB=ON PLU=ON L26 OR L19
 L34 QUE ABB=ON PLU=ON L26 OR L21
 L35 136750 SEA ABB=ON PLU=ON L33 AND L30
 L36 5109 SEA ABB=ON PLU=ON L35 AND (L23 OR L25)
 L37 0 SEA ABB=ON PLU=ON L36 AND L24
 L38 110 SEA ABB=ON PLU=ON L36 AND L32
 L39 322372 SEA ABB=ON PLU=ON 60/SC, SX
 L40 359070 SEA ABB=ON PLU=ON 66/SC, SX
 L41 3 SEA ABB=ON PLU=ON L38 AND L40
 D SCAN
 L42 97656 SEA ABB=ON PLU=ON L28 OR L31
 L43 4964 SEA ABB=ON PLU=ON L33 AND L42
 L44 116 SEA ABB=ON PLU=ON L43 AND L23
 L45 1827 SEA ABB=ON PLU=ON L42 AND L25
 L46 1 SEA ABB=ON PLU=ON L43 AND L24
 L47 1 SEA ABB=ON PLU=ON L44 AND L40
 L48 2 SEA ABB=ON PLU=ON L44 AND L39
 L49 7 SEA ABB=ON PLU=ON L44 AND L32
 L50 0 SEA ABB=ON PLU=ON L45 AND L24
 L51 3 SEA ABB=ON PLU=ON L45 AND L39
 L52 6 SEA ABB=ON PLU=ON L45 AND L40
 L53 93990 SEA ABB=ON PLU=ON SURFAC? (2A) (TREAT? OR MODIF?)
 L54 153 SEA ABB=ON PLU=ON L45 AND L53
 L55 116 SEA ABB=ON PLU=ON L43 AND L23
 L56 16 SEA ABB=ON PLU=ON L55 AND L25

 FILE 'LCA' ENTERED AT 11:26:25 ON 13 JAN 2003
 L57 265 SEA ABB=ON PLU=ON SURFAC? (2A) (TREAT? OR CONDITION? OR
 PRECONDITION? OR PRETREAT? OR MODIF?)
 L58 QUE ABB=ON PLU=ON PARTICL? OR MICROPARTICL? OR PARTICULAT?
 OR DUST? OR GRIT? OR GRAIN# OR GRANUL? OR POWDER? OR SOOT? OR
 SMUT? OR FINES# OR PRILL? OR FLAKE# OR PELLET? OR BB#

 FILE 'HCA' ENTERED AT 11:29:24 ON 13 JAN 2003
 L59 110772 SEA ABB=ON PLU=ON SURFAC? (2A) (TREAT? OR CONDITION? OR
 PRECONDITION? OR PRETREAT? OR MODIF?)
 L60 QUE ABB=ON PLU=ON PARTICL? OR MICROPARTICL? OR PARTICULAT?
 OR DUST? OR GRIT? OR GRAIN# OR GRANUL? OR POWDER? OR SOOT? OR
 SMUT? OR FINES# OR PRILL? OR FLAKE# OR PELLET? OR BB#
 L61 79361 SEA ABB=ON PLU=ON (L30 OR L22) (2A) L58
 L62 1632 SEA ABB=ON PLU=ON L33 AND L61
 L63 12090 SEA ABB=ON PLU=ON L34 AND L61
 L64 24 SEA ABB=ON PLU=ON L62 AND L23
 L65 0 SEA ABB=ON PLU=ON L64 AND L25
 L66 0 SEA ABB=ON PLU=ON L64 AND L24
 L67 0 SEA ABB=ON PLU=ON L64 AND L59
 L68 0 SEA ABB=ON PLU=ON L64 AND L40 L*** DEL 0 S L64 AND LL39
 L69 3 SEA ABB=ON PLU=ON L64 AND L39
 D SCAN

 L70 54948 SEA ABB=ON PLU=ON (CARBON# OR CARBON# (A) BLACK## OR C) (2A) L60

 L71 1274 SEA ABB=ON PLU=ON L70 AND L33
 L72 20 SEA ABB=ON PLU=ON L71 AND L23
 L73 0 SEA ABB=ON PLU=ON L72 AND L25

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L74      1 SEA ABB=ON  PLU=ON  L71 AND L24
L75     1019 SEA ABB=ON  PLU=ON  (PYROL? OR SINTER?) (2A) RUBBER?
L76      0 SEA ABB=ON  PLU=ON  L72 AND L75
L77      0 SEA ABB=ON  PLU=ON  L71 AND L75
L78      0 SEA ABB=ON  PLU=ON  L62 AND L75
L79     8215 SEA ABB=ON  PLU=ON  L70 AND L34
L80      5 SEA ABB=ON  PLU=ON  L79 AND L75
          D SCAN
L81     1182 SEA ABB=ON  PLU=ON  PYROL?(2A) (RUBBER? OR TIRE? OR WHEEL?)
L82      26 SEA ABB=ON  PLU=ON  L69 OR L72 OR L74 OR L80
          D SCAN
L83     135 SEA ABB=ON  PLU=ON  L61(4A) L57
L84      3 SEA ABB=ON  PLU=ON  L83 AND L26
          D SCAN
L85     10 SEA ABB=ON  PLU=ON  L83 AND (L23 OR L24 OR L25)
L86     23 SEA ABB=ON  PLU=ON  L83 AND (SURF? AND MOD?)/TI
L87     19 SEA ABB=ON  PLU=ON  L46 OR L47 OR L48 OR L49 OR L51 OR L52
L88     44 SEA ABB=ON  PLU=ON  (L87 OR L82)
L89    179 SEA ABB=ON  PLU=ON  L83 OR L88
L90      9 SEA ABB=ON  PLU=ON  L69 OR L74 OR L80
L91     18 SEA ABB=ON  PLU=ON  L87 NOT L90
L92     23 SEA ABB=ON  PLU=ON  L86 NOT (L90 OR L91 OR L84)

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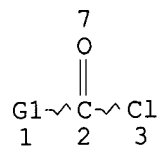
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 DICTIONARY FILE UPDATES: 12 JAN 2003 HIGHEST RN 478784-40-6

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 L5 STR



VAR G1=AK/CY
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
 L7 60817 SEA FILE=REGISTRY SSS FUL L5

100.0% PROCESSED 87245 ITERATIONS
SEARCH TIME: 00.00.04

60817 ANSWERS

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=> d L84 1-3 cbib abs hitind hitrn

L84 ANSWER 1 OF 3 HCA COPYRIGHT 2003 ACS

136:370637 Manufacture of foamed propylene polymer beads for molding high-rigidity and lightweight plastics. Sasaki, Hidehiro; Hira, Akinobu; Hashimoto, Keiichi; Tokoro, Hisao (JSP Corporation, Japan). PCT Int. Appl. WO 2002024794 A2 20020328, 44 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-JP8187 20010920. PRIORITY: JP 2000-285648 20000920.

AB Title process comprises steps of (A) dispersing substantially non-crosslinked propylene resin particles (e.g., polypropylene) in a dispersing medium contg. an org. **peroxide** (e.g., benzoyl **peroxide**), (B) maintaining the dispersion at temp. lower than the m.p. of the propylene resin but sufficient to decomp. the org. **peroxide**, thereby obtaining substantially non-crosslinked and **surface-modified** propylene resin **particles**, and (C) foaming the non-crosslinked and surface-modified propylene resin particles with a blowing agent (e.g., carbon dioxide) to obtain foamed and substantially non-crosslinked propylene resin beads.

IC ICM C08J009-18
ICS C08L023-12

CC 38-2 (Plastics Fabrication and Uses)

ST **peroxide** foamed propylene resin bead molding lightwt plastic
IT **Peroxides**, uses
RL: CAT (Catalyst use); USES (Uses)
(org.; decompd. into oxygen radical in prepn. of foamed propylene bead
for molding high-rigidity and lightwt. plastic)
IT 9003-07-0, Polypropylene 9010-79-1, Ethylene-propylene copolymer
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); POF (Polymer in formulation); PRP (Properties); TEM (Technical
or engineered material use); PROC (Process); USES (Uses)
(beads; contg. org. **peroxide**, foamed for molding
high-rigidity and lightwt. plastic)
IT 94-36-0, Benzoyl **peroxide**, uses 15520-11-3,
Bis(4-tert-butyl-cyclohexyl)**peroxydicarbonate**
RL: CAT (Catalyst use); USES (Uses)
(decompd. into oxygen radical in prepn. of foamed propylene bead for
molding high-rigidity and lightwt. plastic)

L84 ANSWER 2 OF 3 HCA COPYRIGHT 2003 ACS
135:243830 Silane coating material with high hydrophobicity, heat conductivity
and adhesion for air conditioner evaporator. Shu, Jihong; Liu, Huizhi;
Shu, Pin; Jin, Hong (Shu, Hongji, Peop. Rep. China). Faming Zhuanli
Shenqing Gongkai Shuomingshu CN 1284525 A 20010221, 14 pp. (Chinese).
CODEN: CNXXEV. APPLICATION: CN 2000-110559 20000622.
AB The silane coating material with high hydrophobicity, heat cond. and
adhesion esp. designed for finned air conditioner evaporator, comprises of
silane (such as ME Ph polysiloxane), hydrophobically **surface**
treated solid particles (Al **powder**, colloidal
graphite, etc.) and coupling agent (such as vinylsilyl tri-tert-Bu
peroxide).
IC ICM C09D183-04
CC 42-10 (Coatings, Inks, and Related Products)

L84 ANSWER 3 OF 3 HCA COPYRIGHT 2003 ACS
96:86648 Conductive molding composition and discs therefrom. Datta, Pabitra
(RCA Corp., USA). U.S. US 4299736 A 19811110, 7 pp. (English). CODEN:
USXXAM. APPLICATION: US 1980-151361 19800519.
AB **Carbon black particles modified** by
a **surface treatment** with chlorides of long-chain fatty
acids prior to their addn. to vinyl chloride polymers give molding compns.
having reduced melt viscosities, improved dispersion of the particles in
the resin, improved processability, and increased elec. cond. High-d.
information disks molded from the compns. have an improved playback
performance. Thus, 15 parts **carbon black**
particles surface treated with a 1% stearoyl
chloride [112-76-5] soln. in toluene were mixed with 85 parts
molding compn. composed of AP 480 (propylene-vinyl chloride copolymer)
[25119-90-8] 95, dibutyltin .beta.-mercaptopropionate 2, Loxiol G-30
monofatty acid ester lubricant 0.75, Loxiol G-70 polyfunctional fatty acid
ester lubricant 0.25, and K-175 acrylic resin processing aid 2 parts. The
compn. had a lower frictional heat and reduced melt viscosity than a
similar compn. contg. untreated carbon particles. Video disks molded from
the compn. had a better carrier output, video carrier-to-noise ratio, and
audio signal-to-noise ratio and played better than a disk fabricated from
the compn. contg. untreated carbon particles.
IC C08K009-04
NCL 252506000
CC 38-3 (Plastics Fabrication and Uses)
ST vinyl chloride copolymer molding compn; video disk conductive molding
compn; carbon black molding compn; stearoyl chloride treatment carbon
black; fatty **acid chloride** conductive particle;

conductive molding compn information disk; melt viscosity molding compn;
recording app vinyl chloride polymer

IT Carbon black, uses and miscellaneous
RL: USES (Uses)
(fatty **acid chloride**-treated, vinyl chloride
polymer molding compns. contg., for reduced melt viscosity and improved
processability in video disk manuf.)

IT Television
(recording disks for, vinyl chloride polymer molding compns. for,
contg. fatty **acid chloride**-surface treated carbon
black, for reduced melt viscosity and improved processing)

IT Recording apparatus
(video, disks, vinyl chloride polymer molding compns. for, contg. fatty
acid chloride-treated carbon black, for reduced melt
viscosity and improved processing)

IT **112-13-0 112-76-5**
RL: USES (Uses)
(carbon black surface treatment by, for reduced melt viscosity and
improved processability of vinyl chloride polymer molding compns. in
video disk manuf.)

IT 25119-90-8
RL: USES (Uses)
(molding compns., contg. carbon black surface treated with fatty
acid chlorides, for reduced melt viscosity and
improved processability in video disk manuf.)

IT **112-13-0 112-76-5**
RL: USES (Uses)
(carbon black surface treatment by, for reduced melt viscosity and
improved processability of vinyl chloride polymer molding compns. in
video disk manuf.)

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L90 ANSWER 1 OF 9 HCA COPYRIGHT 2003 ACS

134:165239 Recovery of elemental phosphorus from phosphorus sludge. Saran,
Mohan S.; Brooks, James R.; Potts, David Cornelius (Glenn Springs
Holdings, Inc., USA; Stephens, Dinah). PCT Int. Appl. WO 2001010778 A1
20010215, 24 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA,
BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,
ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG,
CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR,
NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO
2000-GB2908 20000727. PRIORITY: US 1999-371284 19990810.

AB Disclosed is a method of recovering elemental phosphorus from a sludge
that contains water, dirt, and elemental phosphorus. In the first step,
the sludge is melted. A mixt. is formed of the melted sludge and about
0.5 to about 3 wt% of an oxidizing agent, based on the wt. of the
elemental phosphorus in the sludge, and about 75 to about 400 wt% water,
based on the wt. of the sludge. The mixt. is stirred until a continuous
elemental phosphorus phase forms. The purified phosphorus phase is sepd.
from the mixt.

IC ICM C01B025-027

CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): **60**

IT 7440-44-0, **Carbon**, miscellaneous
RL: MSC (Miscellaneous)

- (**finest**; recovery of elemental phosphorus from phosphorus sludge)
- IT 7697-37-2, Nitric acid, **reactions** 7722-84-1, Hydrogen peroxide, **reactions** 7738-94-5, Chromic acid (H₂CrO₄) 7782-44-7, Oxygen, **reactions** 10028-15-6, Ozone, **reactions**
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidizing **agent**; recovery of elemental phosphorus from phosphorus sludge)
- L90 ANSWER 2 OF 9 HCA COPYRIGHT 2003 ACS
- 127:37747 Sintered hard alloy for cutting tools. Kubo, Hiroshi (Hitachi Metals, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09111422 A2 19970428 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-272415 19951020.
- AB A hard alloy suitable for cutting tools, dies, molding app., etc., is manufd. by sintering a powd. mixt. contg. a base **powder** contg. C 1.0-4.5, Si .ltoreq.2.0, Mn .ltoreq.2.0, Cr 3-10, W .ltoreq.30, Mo .ltoreq.20 (W + 2Mo .ltoreq.45), V and/or Nb 2-10, and Co .ltoreq.20%, 1-10% (based on the base powder) complex carbide, nitride, and/or carbonitride of Group IVB-VIB element and 1-10% (based on the base powder) simple carbide, nitride, and/or carbonitride of Group IVB-VIB element. The complex carbide, nitride, and/or carbonitride preferably contain W. The alloy has high strength and toughness.
- IC ICM C22C038-00
ICS C22C033-02; C22C038-30
- CC 55-4 (Ferrous Metals and Alloys)
- IT Cutting tools
Dies
Molding apparatus for plastics and **rubbers**
(**sintered** hard alloy prepd. by using base iron alloy powder and powd. complex and simple carbide or nitride or carbonitride)
- IT 12069-85-1, Hafnium carbide 12069-89-5, Molybdenum carbide mo2c 12070-06-3, Tantalum carbide tac 12070-08-5, **Titanium** carbide tic 12070-10-9, Vanadium carbide 12070-14-3, **Zirconium** carbide zrc 12542-38-0, **Titanium** tungsten carbide ti0.5W0.5C 12654-86-3, **Titanium** carbide nitride tic0.5n0.5 24621-21-4, Niobium nitride nbn 24646-85-3, Vanadium nitride 25583-20-4, **Titanium** nitride tin 25658-42-8, **Zirconium** nitride 25817-87-2, Hafnium nitride hfn 106698-99-1, **Titanium** carbide nitride tic0.7n0.3 108801-44-1, **Titanium** tungsten carbide ti0.3W0.7C 142585-53-3, **Titanium** vanadium nitride ti0.6v0.4n 142587-77-7, **Titanium** tungsten nitride ti0.5w0.5n 149629-22-1, **Zirconium** carbide nitride zr c0.7n0.3 188667-33-6, **Titanium** tungsten carbide nitride ti0.5W0.5C0.7n0.3 188667-35-8, **Titanium** tungsten carbide nitride ti0.5W0.5C0.5n0.5 188667-36-9, **Titanium** tungsten carbide nitride ti0.5W0.5C0.3n0.7 188667-46-1, Niobium vanadium carbide nitride nb0.5v0.5c0.5n0.5 188667-49-4, Tantalum **titanium** tungsten carbide ta0.5ti0.3w0.2c 188667-50-7, Molybdenum Tantalum **titanium** carbide mo0.2ta0.5ti0.3c 188667-51-8, Molybdenum **titanium** tungsten carbide nitride mo0.1ti0.7w0.2c0.8n0.2 188667-52-9, Niobium tantalum vanadium carbide nitride nb0.3ta0.5v0.2c0.7n0.3 188667-55-2, Molybdenum **titanium** tungsten carbide nitride mo0.2ti0.6w0.2c0.6n0.4 188667-56-3, Niobium tantalum carbide nitride nb0.3ta0.7c0.6n0.4 188667-57-4, Hafnium **titanium** carbide nitride hf0.3ti0.7c0.6n0.4 188667-59-6, Niobium vanadium carbide nitride nb0.4v0.6c0.5n0.5
RL: MOA (Modifier or additive use); USES (Uses)
(sintered hard alloy prepd. by using base iron alloy powder and powd.)

L90 ANSWER 3 OF 9 HCA COPYRIGHT 2003 ACS

126:34751 Selective laser sintering of metal molds: the RapidTool process. Hejmadi, Uday; McAlea, Kevin (Materials and Process Development Group, DTM Corp., Austin, TX, 78759, USA). Solid Freeform Fabrication Symposium Proceedings 97-104 (English) 1996. CODEN: SFFPF4. ISSN: 1053-2153. Publisher: University of Texas at Austin.

AB A com. SLS process - the RapidTool Process - which allows metal molds to be rapidly manufd. is described. With this process, a polymer coated **carbon** steel **powder** is used to fabricate a "green part" in the SLS machine. The green part is then placed in a furnace with blocks of copper and, in a single furnace cycle, the polymer coating is removed and the steel skeleton is infiltrated with the copper. The resulting steel/copper composite material has durability and thermal cond. similar to **aluminum** and can be hand finished using std. techniques. A finished mold core and cavity set which can be used to mold at least 50,000 parts with most plastics can be prepd. in approx. ten days. The cost to produce most mold geometries with the RapidTool Process is also competitive with traditional mold-making methods.

CC 55-2 (Ferrous Metals and Alloys)

Section cross-reference(s): 38

IT Molding apparatus for plastics and **rubbers**

(selective laser **sintering** of metal molds, the RapidTool process)

L90 ANSWER 4 OF 9 HCA COPYRIGHT 2003 ACS

124:260192 Carbon-Catalyzed Oxidative Coupling of Phenolic Compounds. Osei-Twum, E. Y.; Abuzaid, N. S.; Nahkla, G. (Res. Inst., King Fahd Univ. Petroleum Minerals, Dhahran, 31261, Saudi Arabia). Bulletin of Environmental Contamination and Toxicology, 56(4), 513-19 (English) 1996. CODEN: BECTA6. ISSN: 0007-4861. Publisher: Springer.

AB In an oxidizing medium irreversible adsorption of phenolic compds. was found to be due to an dative coupling **reaction** of phenolic **compds.** on **granular** activated **carbon** surfaces. A mechanism was proposed for the formation of oxidative coupling products in the presence of oxygen or permanganate.

CC 22-7 (Physical Organic Chemistry)

Section cross-reference(s): 25, 60, 61

IT Wastewater treatment

(aerobic, oxidative coupling of phenolic compds. on **granular** activated **carbon**)

IT Wastewater treatment

(anoxic, oxidative coupling of phenolic compds. on **granular** activated **carbon**)

IT 7440-44-0, Carbon, reactions

RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(activated; oxidative coupling of phenolic compds. on **granular** activated **carbon**)

IT 95-48-7, o-Cresol, reactions 100-02-7, 4-Nitrophenol, reactions

108-95-2, Phenol, reactions
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(oxidative coupling of phenolic compds. on **granular** activated **carbon**)

IT 7722-64-7, Potassium permanganate 7722-84-1, Hydrogen **peroxide**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidative coupling of phenolic compds. on **granular** activated **carbon**)

L90 ANSWER 5 OF 9 HCA COPYRIGHT 2003 ACS

- 114:27979 Sintered and extruded iron-chromium-carbon alloys. Tsujii, Nobuhiro; Abe, Genryu; Yamaguchi, Akira; Mishuku, Minoru; Tsuchiya, Nobujiro (Sanyo Special Steel Co., Ltd., Japan; Fuji Die Co., Ltd.). Eur. Pat. Appl. EP 386311 A2 19900912, 10 pp. DESIGNATED STATES: R: DE, FR, GB, IT, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1989-115846 19890828. PRIORITY: JP 1989-52088 19890306.
- AB The sintered preforms for extrusion are manufd. from the Fe-Cr-C alloy **powder** contg. C 0.8-2.0, Si and Mn 0.05-1.0 each, Cr 15-25, and optionally Mo, V, Nb, W, and/or Co 0.05-4.0%. The canned powder is heated for sintering and extrusion, and the preforms are finished by mech. polishing and vapor-phase coating with hard TiC and/or TiN. The process is suitable for manuf. of guide rolls for wire rods, extruder screws, gate parts in molding of reinforced plastics, or powder-compacting dies. Thus, atomized SUS 440C powder was packed in a steel can, and the can was heated at 1030.degree. and extruded at the pressure of 150 kg/mm2. The resulting rod was hot-worked, quenched from 1050.degree., tempered at 200.degree., polished, and vapor-phase coated with TiC to manuf. the guide rolls having service life of 2000 h (vs. only 1000 h for conventional guide rolls).
- IC ICM C22C033-02
ICS C23C016-34; C23C016-32
- CC 55-4 (Ferrous Metals and Alloys)
Section cross-reference(s): 57
- ST iron chromium carbon alloy sintering; coating sintered chromium steel; **titanium** carbide coating sintered roll; extrusion sintered chromium steel
- IT Molding apparatus for plastics and **rubbers**
(**sintered** parts for, from high-chromium steel, hard coating on)
- IT 12070-08-5, **Titanium** carbide (TiC) 25583-20-4,
Titanium nitride (TiN)
RL: USES (Uses)
(coating with, of sintered and extruded high-chromium steel parts)
- L90 ANSWER 6 OF 9 HCA COPYRIGHT 2003 ACS
- 113:217408 Anaerobic biodegradability and toxicity of hydrogen **peroxide** oxidation products of phenols. Wang, Yi Tin; Latchaw, James L. (Dep. Civ. Eng., Univ. Kentucky, Louisville, KY, USA). Research Journal of the Water Pollution Control Federation, 62(3), 234-8 (English) 1990. CODEN: RJWFE7. ISSN: 1047-7624.
- AB The anaerobic biodegradability and toxicity of oxidn. products of 2 phenolic compds. (o-cresol and 2,4-dinitrophenol) reacted with H2O2 were evaluated in batch methanogenic cultures. The reaction products of o-cresol under high doses of H2O2 were biodegradable to CH4 and the biodegradable fraction increased with increasing dose of H2O2. The reaction products of o-cresol under low doses of H2O2 were inhibitory and were not degraded to CH4. However, the inhibition was reduced and conversion of biodegradable products to CH4 was noted after applying **powd.** activated C. Sufficient oxidn. also reduced the toxicity of 2,4-dinitrophenol to phenol-enriched methanogenic culture.
- CC 60-6 (Waste Treatment and Disposal)
Section cross-reference(s): 4, 10
- ST phenol oxidn product biodegradability toxicity; hydrogen **peroxide** phenol oxidn product
- IT Decomposition
(biochem., of phenolic compds., hydrogen **peroxide** effect on, evaluation of)
- IT 7722-84-1, Hydrogen **peroxide**, **reactions**
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(phenolic **compd.** oxidn. by, products from, biodegradability

and toxicity of, evaluation of)

L90 ANSWER 7 OF 9 HCA COPYRIGHT 2003 ACS

112:227378 **Titanium** carbide crystal growth by floating zone method.
Otani, Shigeki; Tanaka, Takao; Ishizawa, Yoshio (National Institute for
Research in Inorganic Materials, Japan). Jpn. Kokai Tokkyo Koho JP
01286996 A2 19891117 Heisei, 3 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1988-113361 19880510.

AB A TiC crystal is grown by floating zone method from a TiC raw material
contg. 0.2-3.0 wt.% W. Grain boundaries of the crystal are decreased by
addn. of W to the raw material. A TiC powder was mixed with a **C**
powder, a W powder, and camphor, and the resulting mixt. was
rubber-pressed and **sintered** at 2000.degree. in vacuum to
give a TiC raw material from which a TiC crystal with uniform compn. was
prepd.

IC ICM C30B029-36

ICS C30B013-00

CC 75-1 (Crystallography and Liquid Crystals)

ST **titanium** carbide crystal floating zone; tungsten addn

titanium carbide crystal

IT Crystal growth

(of **titanium** carbide, by floating zone, with low grain
boundaries)

IT 110710-02-6, **Titanium** carbide (TiC0.95)

RL: PEP (Physical, engineering or chemical process); PROC (Process)
(crystal growth of, by floating zone, with low grain boundaries)

IT 7440-33-7, Tungsten, uses and miscellaneous

RL: PRP (Properties)

(**titanium** carbide crystal prepn. from raw material contg., by
floating zone)

L90 ANSWER 8 OF 9 HCA COPYRIGHT 2003 ACS

110:28157 Manufacture of high-density sintered articles by reaction sintering.
Adachi, Seiji; Wada, Takahiro; Mihara, Toshihiro (Matsushita Electric
Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63170273 A2
19880714 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
1986-311047 19861229.

AB A high-d. sinter article is manufd. by reaction sintering of a raw
material while pressed by synthetic rubber articles. The rubber is
urethane rubber. Thus, a 1:0.9 (by mol) Ti-**C powder**
mixt. was press molded at 1 ton/cm2, embedded in ZrO2 powder (av. size 50
.mu.m), pressed, covered with urethane rubber, and ignited under pressing
at 300 kg/cm2 to give a TiC sinter having relative d. 99.0%.

IC ICM C04B035-64

CC 57-2 (Ceramics)

Section cross-reference(s): 56

ST **titanium** carbide ceramic reaction sintering; boride

titanium ceramic reaction sintering; urethane **rubber**

titanium carbide **sintering**

IT Rubber, urethane, uses and miscellaneous

RL: USES (Uses)

(pressing with, in **titanium** carbide ceramic manuf. by
reaction sintering, for high d.)

IT Ceramic materials and wares

(**titanium** carbide, manuf. of high-d., by reaction sintering
under pressing with urethane rubber)

IT Sintering

(reaction, manuf. of high-d. **titanium** carbide manuf. by)

IT 1314-23-4, **Zirconia**, uses and miscellaneous

RL: USES (Uses)

- (ceramics, contg. **alumina** and **titanium** carbide,
manuf. of high-d., by reaction sintering under pressing with urethane
rubber)
- IT 12045-63-5, **Titanium** boride 12070-08-5, **Titanium**
carbide
RL: USES (Uses)
(ceramics, manuf. of high-d., by reaction sintering under pressing with
urethane rubber)
- L90 ANSWER 9 OF 9 HCA COPYRIGHT 2003 ACS
73:121355 **Particle** interaction in **carbon black**
loaded vulcanizates. Voet, Andries; Cook, F. Russell; Hogue, R. (Res.
Dep., J. M. Huber Corp., Borger, TX, USA). Rubber Chemistry and
Technology, 43(5), 969-72 (English) 1970. CODEN: RCTEA4. ISSN:
0035-9475.
- AB Mixts. of butadiene-styrene rubber and a medium- or high-structure HAF
carbon black were swollen in Decalin and then vulcanized with dicumyl
peroxide. Decalin was extd. with a volatile solvent in successive
steps, giving a series of isotropically shrunken vulcanizates. Dynamic
modulus values at greatly varying amplitudes were detd. for vulcanizates
with the blacks. The transient carbon-black structure is an exponential
function of the interparticle distance, confirming a previous hypothesis
attributing the transient structure to a mutual particle attraction by
van der Waals forces.
- CC 38 (Elastomers, Including Natural Rubber)
ST carbon black structure vulcanizates; vulcanizates carbon black structure;
SBR rubber carbon black loaded; dicumyl **peroxide** vulcanized
rubber
- IT Rubber, butadiene-styrene, properties
(dynamic modulus of **carbon black**-filled,
particle interaction in relation to)

=> d L91 1-18 ti

- L91 ANSWER 1 OF 18 HCA COPYRIGHT 2003 ACS
TI Surface modification of solid microparticles for dispersions without using
polymeric reactive **coupling agents**
- L91 ANSWER 2 OF 18 HCA COPYRIGHT 2003 ACS
TI Magnetic recording medium with high output and favored smoothness and low
error rate
- L91 ANSWER 3 OF 18 HCA COPYRIGHT 2003 ACS
TI Alkaline hardening agents for silicate materials comprising calcia compn.,
alkali composition and water composition and water- and heat-resistant
solidified body therewith
- L91 ANSWER 4 OF 18 HCA COPYRIGHT 2003 ACS
TI Investigation of surface activity of **carbon black** by
reverse phase chromatography
- L91 ANSWER 5 OF 18 HCA COPYRIGHT 2003 ACS
TI Influence of surface treatment on PTC characteristics of low density
polyethylene/**carbon black** composites
- L91 ANSWER 6 OF 18 HCA COPYRIGHT 2003 ACS
TI Derivatization of silicon surfaces to form polymer junctions with silicon
- L91 ANSWER 7 OF 18 HCA COPYRIGHT 2003 ACS

TI Polyester film for magnetic recording medium, and magnetic recording tape

L91 ANSWER 8 OF 18 HCA COPYRIGHT 2003 ACS

TI Estimation of surface (interface) properties of composite with contact angle method

L91 ANSWER 9 OF 18 HCA COPYRIGHT 2003 ACS

TI **Reaction agent** for decomposition of hardly decomposable organic chlorides and decomposition method using the agent

L91 ANSWER 10 OF 18 HCA COPYRIGHT 2003 ACS

TI Plastics and fly ash compositions

L91 ANSWER 11 OF 18 HCA COPYRIGHT 2003 ACS

TI Silicone-treated powders and their use in manufacturing water-repelling cosmetics

L91 ANSWER 12 OF 18 HCA COPYRIGHT 2003 ACS

TI Silicone-treated powders and their use in manufacturing water-repelling cosmetics

L91 ANSWER 13 OF 18 HCA COPYRIGHT 2003 ACS

TI Silicone-treated powders and their use in manufacturing water-repelling cosmetics

L91 ANSWER 14 OF 18 HCA COPYRIGHT 2003 ACS

TI Metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**

L91 ANSWER 15 OF 18 HCA COPYRIGHT 2003 ACS

TI Process for improving surface properties of material and **surface -treating** apparatus therefor

L91 ANSWER 16 OF 18 HCA COPYRIGHT 2003 ACS

TI Regranulated polycaprolactam compositions for injection molding

L91 ANSWER 17 OF 18 HCA COPYRIGHT 2003 ACS

TI Electrostatographic toners

L91 ANSWER 18 OF 18 HCA COPYRIGHT 2003 ACS

TI Colloidal compositions

=> d L91 1,3-5,8-11,13-15,17-18 cbib abs hitind hitrn

L91 ANSWER 1 OF 18 HCA COPYRIGHT 2003 ACS

136:407328 Surface modification of solid microparticles for dispersions without using polymeric reactive **coupling agents**.
Ando, Nobuyuki; Kuwamoto, Kazuyuki; Shudo, Tokio; Ikeda, Hayato (Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002159839 A2 20020604, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-359951 20001127.

AB The method contains (A) a high-temp. dispersing process at .gtoreq.60.degree. with a solvent and a dispersant followed by (B) a low-temp. dispersing process, wherein the difference of the temp. for A and B is 20.degree. or greater. Uniform dispersion is achieved for any solid microparticles (pigments, magnetic powders, ceramics, etc.) with this method.

IC ICM B01J019-00

CC 66-4 (Surface Chemistry and Colloids)

Section cross-reference(s): 57

- IT **Carbon black**, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(method of dispersing solid microparticles by heating without using polymeric surface modifiers)
- L91 ANSWER 3 OF 18 HCA COPYRIGHT 2003 ACS
136:344623 Alkaline hardening agents for silicate materials comprising calcia compn., alkali composition and water composition and water- and heat-resistant solidified body therewith. Naito, Hiroyuki; Naito, Nanae (Nato Kenkyusho K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2002128550 A2 20020509, 64 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-351931 20001016.
- AB Alk. hardening **agents** for readily **reactive** silicate **compds.** comprise (1) a CaO compn. contg. .gtoreq.50 wt.% CaO.WH2O (w= .ltoreq.10 including 0) 100, (2) an alkali compn. contg. .gtoreq.50 wt.% M2O (M=Li, Na, or K) 1-30, and (3) a water compn. contg. .gtoreq.70 wt.% water 1-300 wt. parts. Silicate materials contg. .gtoreq.20 wt.% SiO2 and .gtoreq.2 wt.% Al2O3 and readily reactive with ionic alkali metals are mixed with the alk. hardening agents to prep. deformable mixts., shaped and hardened to obtain water- and heat-resistant solidified body. The silicate materials contain silicate compds. from volcanic ash-based clay, clay mineral, org. soil, incineration ash, dry distn. treated ash, construction waste soil, sludge, silicate waste. The CaO compn. is a cement powder compn. from portland cement, blast furnace cement, silica cement, fly ash cement and/or aluminous cement.
- IC ICM C04B012-04
ICS B09B003-00; C02F011-00; C09K017-02; C09K017-06; C09K017-12; C09K103-00
- CC 58-6 (Cement, Concrete, and Related Building Materials)
Section cross-reference(s): 60
- IT **Carbon black**, uses
Glass beads
Iron ores, uses
Kaolin, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(additive; alk. hardening agents for silicate materials comprising calcia compn., alkali compn. and water compn. and water- and heat-resistant solidified body therewith)
- IT 814-91-5, Copper oxalate 1305-78-8, Calcia, uses 1335-30-4, Aluminum silicate 1344-09-8, Water glass 7487-88-9, Magnesium sulfate, uses 7727-43-7, Barium sulfate 7757-82-6, Sodium sulfate, uses 7778-18-9, Calcium sulfate 7778-80-5, Potassium sulfate, uses 10043-01-3, Aluminum sulfate 11138-49-1, Sodium **aluminate** 12650-28-1, Barium silicate 51404-74-1, Silicon phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(alk. hardening agents for silicate materials comprising calcia compn., alkali compn. and water compn. and water- and heat-resistant solidified body therewith)
- L91 ANSWER 4 OF 18 HCA COPYRIGHT 2003 ACS
135:372878 Investigation of surface activity of **carbon black** by reverse phase chromatography. Urabe, Nobuaki (Japan). Porima Daijesuto, 53(10), 113-128 (Japanese) 2001. CODEN: PODADB. ISSN: 0386-3700. Publisher: Raba Daijesutosha.
- AB A review with refs. Surface of rubber reinforcing **carbon black** is modified by extn., heat treatment, plasma treatment, mech. processing, and silane **coupling agent** treatment and changes in surface activity is detd. by reverse phase chromatog.

- CC 39-0 (Synthetic Elastomers and Natural Rubber)
Section cross-reference(s): 66
- ST review **carbon black** rubber reinforcement surface
modification
- IT Reversed phase chromatography
Surface activity
(investigation of surface activity of **carbon black**
by reverse phase chromatog.)
- IT **Carbon black**, properties
RL: PRP (Properties)
(investigation of surface activity of **carbon black**
by reverse phase chromatog.)
- L91 ANSWER 5 OF 18 HCA COPYRIGHT 2003 ACS
135:350886 Influence of surface treatment on PTC characteristics of low
density polyethylene/**carbon black** composites. Luo,
Yan-ling; Zhao, Zhen-xing (Petrochemical Research Institute of Lanzhou
Petrochemical Co., PetroChina, Lanzhou, 730060, Peop. Rep. China). Shihua
Jishu Yu Yingyong, 19(3), 144-147 (Chinese) 2001. CODEN: SJYIF4. ISSN:
1009-0045. Publisher: Shihua Jishu Yu Yingyong Bianjibu.
- AB The PTC behavior of low d. polyethylene (LDPE)/**C black**
(CB) composites was studied using CB surface treated with titanate
coupling agent as conducting particles and LDPE as
matrix. The profile and dispersion behaviors of CB particles were also
analyzed. The results showed that the homogeneously dispersed CB particle
in matrix could be obtained. The cond. of the LDPE/CB composites was
remarkably enhanced, and the PTC intensity increased 1 order, and the
resistance stability of the composites was improved.
- CC 76-1 (Electric Phenomena)
Section cross-reference(s): 38, 66
- ST polyethylene **carbon black** surface treatment PTC
composite
- IT **Coupling agents**
(Titanates; influence of surface treatment on PTC characteristics of
low d. polyethylene/**carbon black** composites)
- IT Titanates
RL: MOA (Modifier or additive use); USES (Uses)
(**coupling agent**; influence of surface treatment on
PTC characteristics of low d. polyethylene/**carbon**
black composites)
- IT Sintering
(hot pressing; influence of surface treatment on PTC characteristics of
low d. polyethylene/**carbon black** composites)
- IT Electric conductivity
PTCR materials
(influence of surface treatment on PTC characteristics of low d.
polyethylene/**carbon black** composites)
- IT **Carbon black**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(influence of surface treatment on PTC characteristics of low d.
polyethylene/**carbon black** composites)
- IT Dispersion (of materials)
(of **carbon black**; influence of surface treatment on
PTC characteristics of low d. polyethylene/**carbon**
black composites)
- IT 9002-88-4, Polyethylene
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(influence of surface treatment on PTC characteristics of low d.
polyethylene/**carbon black** composites)

L91 ANSWER 8 OF 18 HCA COPYRIGHT 2003 ACS

134:76864 Estimation of surface (interface) properties of composite with contact angle method. Yu, Gang; Wang, Zhixian (Sichuan Academy of Forestry, Chengdu, 610066, Peop. Rep. China). Zhanjie, 21(5), 28-32 (Chinese) 2000. CODEN: ZHANET. ISSN: 1001-5922. Publisher: Zhanjie Bianjibu.

AB The contact angles of **carbon black** (CB) treated with different methods were measured using filler-column method, and the surface (interface) parameters of CB filled low d. polyethylene (LDPE) elec. conductive composites were estd. based on the unified theory of adhesion. The results showed that the surface free energy and interfacial adhesion work of CB can be increased to some extent after treating with HNO₃, but the situation was opposite for **coupling agents**. The variations of carboxyl groups in CB surface were the main factors affecting the surface (interface) properties of CB, which can be used to adjust CB-LDPE interface interactions resulting in the change of morphol. of CB dispersed in LDPE matrix.

CC 66-4 (Surface Chemistry and Colloids)

ST polymer filler **carbon black** composite surface property
contact angle

IT Contact angle

Coupling agents

Interface

Surface

Surface tension

(estn. of surface and interface properties of composite with contact angle method)

IT **Carbon black**, properties

RL: PRP (Properties)

(estn. of surface and interface properties of composite with contact angle method)

L91 ANSWER 9 OF 18 HCA COPYRIGHT 2003 ACS

133:226958 **Reaction agent** for decomposition of hardly decomposable organic chlorides and decomposition method using the agent. Atobe, Hitoshi; Kaneko, Kenichi; Kashiwata, Kunio; Igushi, Isao; Naito, Akifumi; Makhmutov, Fanil A.; Myshkin, Roman Nikolaevich (Showa Denko K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2000246059 A2 20000912, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-116173 19990423. PRIORITY: JP 1998-372525 19981228.

AB This **reaction agent** is a solid material of a single substance C contg. alkali metal compds. and/or alk. earth compds. Hardly decomposable org. chlorides are mixed in gas-, liq.- and/or solid-state and brought into contact with the agent at .gtoreq.100.degree. to be decompd. The alkali metal compds. may be oxides, hydroxides, hydrogen carbonates, carbonates, silicates, phosphates, **aluminates**, nitrates, and sulfates of Li, Na, K, Rb, and Cs: the alk. earth compds. may be oxides, hydroxides, hydrogen carbonates, and carbonates of Mg, Ca, Sr, and Ba: and the single substance C may be char, coal, pitch, charcoal, activated **carbon**, **carbon black**, or coke. Harmful org. chlorides, e.g. polychlorodioxins, polychlorodibenzofuran, polychlorobiphenyl, and polychlorobenzenes, in flue gases can efficiently be decompd. at relatively low temp. and Cl can be immobilized as harmless compds.

IC ICM B01D053-70

ICS A62D003-00; C09K003-00

CC 59-4 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 51, 57, 60

IT Alkali metal hydroxides

Alkali metal oxides

Alkaline earth compounds
Alkaline earth hydroxides
Alkaline earth oxides

Carbon black, uses

Charcoal
Coal, uses
Coke

RL: TEM (Technical or engineered material use); USES (Uses)

(decompn. agent contg.; decompn. agent and method for removing hardly decomposable polychloro org. compds. for waste gas treatment)

IT 144-55-8, Sodium hydrogen carbonate, uses 298-14-6 471-34-1, Calcium carbonate, uses 497-19-8, Sodium carbonate, uses 513-77-9, Barium carbonate 534-17-8, Cesium carbonate 546-93-0, Magnesium carbonate 554-13-2, Lithium carbonate 584-08-7, Potassium carbonate 584-09-8, Rubidium carbonate 1302-42-7, Sodium **aluminate** 1304-28-5, Barium oxide, uses 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcium oxide, uses 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, uses 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1310-82-3, Rubidium hydroxide 1312-76-1, Potassium silicate 1313-59-3, Sodium oxide, uses 1314-11-0, Strontium oxide, uses 1344-09-8, Sodium silicate 1633-05-2, Strontium carbonate 2090-64-4, Magnesium hydrogen carbonate 3983-19-5, Calcium hydrogen carbonate 7488-54-2, Rubidium sulfate 7631-99-4, Sodium nitrate, uses 7632-05-5, Sodium phosphate 7757-79-1, Potassium nitrate, uses 7757-82-6, Sodium sulfate, uses 7778-80-5, Potassium sulfate, uses 7789-18-6, Cesium nitrate 7790-69-4, Lithium nitrate 10294-54-9, Cesium sulfate 10377-48-7, Lithium sulfate 10377-52-3, Lithium phosphate 11137-59-0, Potassium **aluminate** 12003-20-2, Cesium **aluminate** 12136-45-7, Potassium oxide, uses 12627-14-4, Lithium silicate 13126-12-0, Rubidium nitrate 15519-28-5, Cesium hydrogen carbonate 16068-46-5, Potassium phosphate 17194-00-2, Barium hydroxide 18088-11-4, Rubidium oxide 18480-07-4, Strontium hydroxide 19088-74-5, Rubidium hydrogen carbonate 20281-00-9, Cesium oxide 21351-79-1, Cesium hydroxide 37220-89-6, Lithium **aluminate** 37279-91-7, Cesium silicate 52933-94-5, Rubidium **aluminate** 56729-37-4, Rubidium silicate 69089-35-6, Cesium phosphate 69098-11-9, Rubidium phosphate

RL: TEM (Technical or engineered material use); USES (Uses)

(decompn. agent contg.; decompn. agent and method for removing hardly decomposable polychloro org. compds. for waste gas treatment)

L91 ANSWER 10 OF 18 HCA COPYRIGHT 2003 ACS

133:44365 Plastics and fly ash compositions. Li, Zhongqiu (Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1221767 A 19990707, 5 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1998-114393 19981020.

AB The title compns., with good strength, abrasion, deterioration, and moisture resistance, and lightwt., and useful as wood, metal, or cement substitutes, (no data), comprise fly ash 40-80, Fe-damping plastics 10-20, **coupling agents** 1-8, recycled rubber powder 2-10, and optionally corundum 1-6, resin 2-9, CaO 2-5, C 1-3, and antistatic agents 1-2 parts.

IC ICM C08L101-00
ICS C08J011-00

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 39, 60

ST fly ash waste plastic **coupling agent** compn; rubber
powd fly ash **coupling agent** compn

IT Abrasion-resistant materials
Antistatic agents

Coupling agents

Recycling of plastics and rubbers
Strength
Water-resistant materials
(plastics and fly ash compns.)

IT **Carbon black**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(plastics and fly ash compns.)

L91 ANSWER 11 OF 18 HCA COPYRIGHT 2003 ACS

126:282550 Silicone-treated powders and their use in manufacturing water-repelling cosmetics. Iyanagi, Koichi; Takahashi, Eiji (Pola Kasei Kogyo Kk, Japan). Jpn. Kokai Tokkyo Koho JP 09053022 A2 19970225 Heisei, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-204877 19950810.

AB Powders treated with silicones contg. $Q_n(SiO_3/2)_n$ [Q_n = org. group having n valence; n = 2-6] as main units and $(R_1)_3SiO_{1/2}$ [R_1 = (un)substituted hydrocarbon] as side chains and their use in manufg. water-repelling cosmetics are claimed. As an example, lip colors contained castor oil 60, lanolin 10, microcryst. wax 20, polydimethylsiloxane 3, candelilla wax 4, carnauba wax 3, silicone-treated powd. colorants 5, silicone-treated powd. titanium mica 2 and talc 3 wt. parts.

IC ICM C09C003-12
ICS A61K007-00; C09D005-00; C09D005-20

CC 62-4 (Essential Oils and Cosmetics)
Section cross-reference(s): 38

ST silicone **surface treatment** powder cosmetic

IT **Carbon black**, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(silicone-treated; silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **18171-50-1DP, reaction** products with silane
compds. 29055-11-6DP, **reaction** products with silane
compds. 145940-18-7DP, **reaction** products with silane
compds. 178317-18-5DP, **reaction** products with silane
compds. 178317-19-6DP, **reaction** products with silane
compds. 178317-21-0DP, **reaction** products with silane
compds. 178317-22-1DP, **reaction** products with silane
compds. 178317-25-4DP, **reaction** products with silane
compds. 178317-28-7DP, **reaction** products with silane
compds. 178317-29-8DP, **reaction** products with silane
compds. 178317-30-1DP, **reaction** products with silane
compds. 178317-31-2DP, **reaction** products with silane
compds. 178317-32-3DP, **reaction** products with silane
compds. 178317-33-4DP, **reaction** products with silane
compds. 188840-18-8DP, **reaction** products with silane
compds. 188939-66-4DP, **reaction** products with silane
compds. 188939-67-5DP, **reaction** products with silane
compds. 188939-68-6DP, **reaction** products with silane
compds.
RL: BUU (Biological use, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **75-77-4, reactions** 78-10-4 91-95-2, [1,1'-Biphenyl]-3,3',4,4'-tetramine **99-63-8**, 1,3-Benzenedicarbonyl dichloride **100-20-9**, 1,4-Benzenedicarbonyl dichloride **107-37-9** **111-50-2**, Hexanedioyl dichloride 121-44-8, reactions 681-84-5 **768-33-2** **814-68-6**, 2-Propenoyl chloride 994-49-0 1026-92-2 **1470-91-3**, 3-Butenoyl chloride 1825-61-2 2487-90-3

2768-02-7 2855-27-8 3253-41-6 4420-74-0 **4422-95-1**,
1,3,5-Benzenetricarbonyl trichloride 10025-78-2 13822-56-5
14814-09-6 17018-07-4 17841-51-9 **18162-48-6** 58068-97-6
63823-23-4 64164-85-8 93824-29-4 178317-17-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **18171-50-1DP, reaction products with silane compds.**

RL: BUU (Biological use, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **75-77-4, reactions 99-63-8, 1,3-Benzenedicarbonyl dichloride 100-20-9, 1,4-Benzenedicarbonyl dichloride 107-37-9 111-50-2, Hexanedioyl dichloride 768-33-2 814-68-6, 2-Propenoyl chloride**

1470-91-3, 3-Butenoyl chloride 4422-95-1, 1,3,5-Benzenetricarbonyl trichloride 18162-48-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

L91 ANSWER 13 OF 18 HCA COPYRIGHT 2003 ACS

126:268311 Silicone-treated powders and their use in manufacturing water-repelling cosmetics. Iyanagi, Koichi; Takahashi, Eiji (Pola Kasei Kogyo Kk, Japan). Jpn. Kokai Tokkyo Koho JP 09053023 A2 19970225 Heisei, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-204878 19950810.

AB Powders are treated with silicones contg. $Q_n(\text{SiO}_3/2)_n$ [Q_n = org. group having n valence; n = 2-6] as main units and $(R_1)_3\text{SiO}_{1/2}$ [R_1 = (un)substituted hydrocarbon] and $(R_2)\text{O}_{1/2}$ [R_2 = (un)substituted hydrocarbon] as side chains for use in manufg. water-repelling cosmetics. As an example, lip colors contained castor oil 60, lanolin 10, microcryst. wax 20, polydimethylsiloxane 3, candelilla wax 4, carnauba wax 3, silicone-treated powd. colorants 5, silicone-treated powd. titanium mica 2 and talc 3 wt. parts.

IC ICM C09C003-12

ICS A61K007-00; C09D005-00; C09D005-20

CC 62-4 (Essential Oils and Cosmetics)

Section cross-reference(s): 38

ST silicone **surface treatment** powder cosmetic

IT **Carbon black**, biological studies

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(silicone-treated; silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **18171-50-1DP, reaction products with silane**

compds. 145940-18-7DP, **reaction products with silane**
compds. 153487-60-6DP, **reaction products with silane**
compds. 178317-18-5DP, **reaction products with silane**
compds. 178317-19-6DP, **reaction products with silane**
compds. 178317-20-9DP, **reaction products with silane**
compds. 178317-21-0DP, **reaction products with silane**
compds. 178317-22-1DP, **reaction products with silane**
compds. 178317-25-4DP, **reaction products with silane**
compds. 178317-26-5DP, **reaction products with silane**
compds. 178317-27-6DP, **reaction products with silane**
compds. 178317-28-7DP, **reaction products with silane**
compds. 178317-29-8DP, **reaction products with silane**

compds. 178317-30-1DP, **reaction** products with silane
compds. 178317-31-2DP, **reaction** products with silane
compds. 178317-32-3DP, **reaction** products with silane
compds. 178317-33-4DP, **reaction** products with silane
compds. 178385-10-9DP, **reaction** products with silane
compds.

RL: BUU (Biological use, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **75-77-4**, Trimethylchlorosilane, reactions 78-10-4, Tetraethoxysilane 91-95-2, 3,3'-Diaminobenzidine **99-63-8**, Isophthalic chloride **100-20-9**, 1,4-Benzenedicarbonyl dichloride **107-37-9**, Allyltrichlorosilane **111-50-2**, Adipoyl chloride 121-44-8, Triethylamine, reactions 681-84-5, Tetramethoxysilane **768-33-2**, Phenyltrimethylchlorosilane **814-68-6**, Acryloyl chloride 994-49-0, Hexaethyldisiloxane 1026-92-2, Diallyl terephthalate **1470-91-3**, 3-Butenoyl chloride 1825-61-2, Trimethylmethoxysilane 2487-90-3, Trimethoxysilane 2768-02-7, Vinyltrimethoxysilane 2855-27-8, 1,2,4-Trivinylcyclohexane 3253-41-6, Pentaerythritol tetramethacrylate 4420-74-0, 3-Mercaptopropyltrimethoxysilane **4422-95-1**, Trimesoyl chloride 10025-78-2, Trichlorosilane 13822-56-5, 3-Aminopropyltrimethoxysilane 14814-09-6, 3-Mercaptopropyltriethoxysilane 17018-07-4, Glycerol 1,3-diallyl ether 17841-51-9, Hexapropyldisiloxane **18162-48-6**, tert-Butyldimethylchlorosilane 58068-97-6 63823-23-4, 3-Aminopropyltrichlorosilane 64164-85-8, 3-Aminopropylmethoxysilane 93824-29-4 178317-17-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **18171-50-1DP**, **reaction** products with silane
compds.

RL: BUU (Biological use, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

IT **75-77-4**, Trimethylchlorosilane, reactions **99-63-8**, Isophthalic chloride **100-20-9**, 1,4-Benzenedicarbonyl dichloride **107-37-9**, Allyltrichlorosilane **111-50-2**, Adipoyl chloride **768-33-2**, Phenyltrimethylchlorosilane **814-68-6**, Acryloyl chloride **1470-91-3**, 3-Butenoyl chloride **4422-95-1**, Trimesoyl chloride **18162-48-6**, tert-Butyldimethylchlorosilane

RL: RCT (Reactant); RACT (Reactant or reagent)

(silicone-treated powders and their use in manufg. water-repelling cosmetics)

L91 ANSWER 14 OF 18 HCA COPYRIGHT 2003 ACS

125:176505 Metal fixation in oily waste contaminated soil using microwave radiation acting on in-situ produced **coupling agent**.

Archambeault, Gary L.; Murphy, William J.; Mackert, Edmund M. (Exxon Research and Engineering Company, USA). U.S. US 5545804 A 19960813, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1995-395340 19950228.

AB Heavy metals contaminants in soils are fixed and rendered non-leachable by the process of heating the metal contaminated soil contg. a hydrocarbon liq., at an elevated temp. sufficient to convert at least a part of the liq. hydrocarbon into solid carbon or coke deposited on the surface of the